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HELMINTHOLOGICAL ABSTRACTS

incorporating
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For the Year 1937.



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Vol. VI, Part 3.

160—Advisory Leaflet. Ministry of Agriculture and Fisheries. London.

a. ANON, 1937.—“The potato root eelworm.” No. 284, 3 pp.

161—Allatorvosi Lapok.

a. KOTLÁN, S. & VAJDA, T., 1937.—“A juhok tüdőférgességéről és annak orvoslásáról.” 60 (14), 231-239.

(161a) Kotlán & Vajda give a general account of the metastrongyles of sheep: Dictyocaulus, Protostrongylus, Müllerius, and Neostrongylus, with an illustrated description of diagnosis based on the forms of the larval tails. They then discuss the pathogenicity and, briefly reviewing the literature on treatment, pass on to an account of their own experience with a drug “Dictyolin” which has given good results. The drug is administered with the sheep lying on a simple cradle. Severe stomach-worm infection is a contra-indication, and should be treated first. B.G.P.

162—American Journal of Hygiene.

a. LANDSBERG, J. W., 1937.—“The reticulocyte response in acute, fatal hookworm anemia.” 26 (1), 60-71.
b. BROWN, H. W., 1937.—“Observations on the mode of action of several anthelmintics upon *Ascaris lumbricoides* (pig strain).” 26 (1), 72-83.
c. STOLL, N. R., 1937.—“Tapeworm studies. V. Absence of *M. expansa* from the sheep intestine early after infection.” 26 (1), 148-161.
d. CHANDLER, A. C., 1937.—“Studies on the nature of immunity to intestinal helminths. V. Experiments on the rôle of the skin in parenteral immunity, and further experiments on passive immunization in Nippostrongylus infections in rats.” 26 (2), 292-308.
e. CHANDLER, A. C., 1937.—“Studies on the nature of immunity to intestinal helminths. VI. General resumé and discussion.” 26 (2), 309-321.
f. SHELDON, A. J., 1937.—“The rate of loss of worms (*Strongyloides ratti*) in rats.” 26 (2), 352-354.
g. SHELDON, A. J., 1937.—“Age resistance in laboratory rats to infection with *Strongyloides ratti*.” 26 (2), 355-357.
h. SHELDON, A. J., 1937.—“Studies on routes of infection of rats with *Strongyloides ratti*.” 26 (2), 358-373.

(162a) During the development of a fatal hookworm anaemia in dogs suffering from *Ancylostoma caninum* there is a marked reticulocytosis. The anaemia is post-haemorrhagic in character and can be reproduced along with a marked reticulocytosis in other dogs by artificially induced haemorrhage. When the bone marrow is temporarily exhausted by hookworm infection and is unable to compensate rapidly enough for the blood lost, a fatal anaemia follows.

R.T.L.

(162b) Brown has shown that *Ascaris lumbricoides* will ingest solutions of normal saline and mineral oils and even solutions of carbon tetrachloride in mineral oils, but that they will not ingest solutions of oil of chenopodium in mineral oil. Both carbon tetrachloride and oil of chenopodium were found to act more rapidly on Ascaris when the worms were immersed in the solutions than when the solutions were injected orally into the gastro-intestinal tract. It was found that death is delayed when the anthelmintics are applied locally to a small portion of the worm. This may account for the passage of dead Ascaris as long as 10 days after anthelmintic treatment.

K.S.

(162c) Stoll puts forward the hypothesis that there is a primary tissue invasive stage for *Moniezia expansa*. He arrives at this conclusion as he has found that when sheep and lambs are exposed to *Moniezia* infection for 7 days and then killed no tapeworms are evident, whereas control animals exposed to the same infection but subsequently held indoors several days before killing show a positive infection. No tapeworms were found at autopsy less than 9 days after the initial infection. He also found that strobila recovered from sheep killed 12 days after their final infection were remarkably small in comparison with the rapid growth of the cestodes in the intestine. The theory is borne out by the characteristic immunity which develops in sheep against *Moniezia expansa*.

K.S.

(162d) Chandler has evidence in cases of *Nippostrongylus* immunity in rats that the resistance is localized mainly in the intestine, for as many larvae are able to penetrate the skin and reach the intestine in immune as in non-immune animals. However, in immune animals skin penetration results in increased eosinophile and leucocyte response and this skin reaction is specific. An attempt to transfer such immunity by means of serum treatment was not highly successful when measured by the number of larvae completing migration, though there was a slight effect on the number of larvae which were able to establish themselves in the host, and on their egg-laying capacity. The serum from rats which had been immunized by implantation of adult worms into the intestine was incapable of affecting migration, establishment or egg laying in non-immune rats. Immunization to *Nippostrongylus* infestation by means of *Ancylostoma* larvae was not successful.

P.A.C.

(162e) Chandler considers the general nature of immunity to intestinal helminths bearing in mind to a large extent *Nippostrongylus* infection in rats. It is his opinion that parenteral immunity is stimulated partly by the metabolic products of migrating worms and partly by the proteins liberated by dead larvae, decomposing in the skin. It is probably comparable to bacterial immunity. In a normal host such immunity may be slight, due to the fact that the larvae pass quickly through the skin. Such parenteral immunity is

not localized in the skin since it results in a retardation of growth and development. It is therefore spread over the body via the circulatory system, and hence should be considered as a general immunity locally manifested. Similar retardation may occur in the intestine, but its effect is not felt on worms anywhere else in the body—it is entirely local in its effect. The theories of other workers, both helminthological and bacteriological, are considered.

P.A.C.

(162f) The rate of loss of *Strongyloides ratti*, in the absence of re-infection, was examined by Sheldon. A gradual loss began after 8 days and a sudden loss occurred between the 29th and 36th days after infection. It is unlikely that this resulted from the completion of the life cycle of the worms, as many worms can live for as long as 300 days. It is probably due to the development of an acquired immunity.

P.A.C.

(162g) Sheldon finds that rats 2 or 4 months old are equally susceptible to infestation with *Strongyloides ratti*. Some resistance was demonstrated at 8 months, but would seem to be less apparent at 12 months, while it has re-appeared again at 17 months. Such age resistance is obviously not of the same order as that resulting from existing infestations or from the serial injections of dead larvae.

P.A.C.

(162h) Sheldon finds that skin penetration is not the only method of inducing infestation with *Strongyloides ratti* in rats. Larvae can be introduced subcutaneously into the muscles, colon, venous system or body cavity, directly into the stomach or small intestine or orally via the pregastric mucosa. The last method gives results as successful as the normal subcutaneous route. Other methods of introduction all gave less satisfactory results and the possible reasons for this are discussed.

P.A.C.

163—American Journal of Public Health.

a. SUNKES, E. J. & SELLERS, T. F., 1937.—“Tapeworm infestations in the southern United States.” 27 (9), 893-898.

(163a) From reports on 927,625 faecal examinations obtained in reply to a questionnaire sent to boards of health laboratories in 13 southern states, U.S.A., it appears that the mean incidence of tapeworm infection is 0.87% ranging from 0.29% in Florida to 2.97% in Tennessee. Of a total number of 8,085 tapeworm cases 7,249 were available for study and of these 7,149 were due to *Hymenolepis nana*, 58 to *Taenia saginata*, 8 to *T. solium*, 32 to *Hymenolepis diminuta*, 1 to *Diphyllobothrium latum* and 1 to *Dipylidium caninum*.

R.T.L.

164—American Journal of Tropical Medicine.

a. BONNE, C., 1937.—“Invasion of the submucosa of the human small intestine by *Ancylostoma braziliense*.” 17 (4), 587-594.

(164a) Bonne adds two further cases to the three recorded in 1935 [see Helm. Abs., Vol. IV., No. 115a] in which hookworm adults were found invading the submucosa of the small intestine of Malays in Java. Local haemorrhages and inflammation associated with eosinophilia were caused by

the wandering worms. In one case the worms were identified by Sandground as *Ancylostoma braziliense*. The worms deposited eggs in the jejunal mucosa in large numbers. These in due time became embryonated and the embryos escaped. Purulent peritonitis, due to the perforation of the jejunum, caused the death of one of the patients.

R.T.L.

165—Anales del Instituto de Biología.

- a. CABALLERO Y C., E., 1937.—“Nemátodos de algunos vertebrados del Valle del Mezquital, Hgo.” 8 (1/2), 189-200. [English summary p. 199.]
- b. CABALLERO Y C., E., 1937.—“Contribución al conocimiento de la fauna helmintológica intestinal del Valle del Mezquital.” 8 (1/2), 303-306. [English summary p. 306.]

(165a) Caballero redescribes the following nematodes recovered from various vertebrates in the Mezquital Valley, State of Hidalgo (to the flora and fauna of which region the whole of this number is dedicated): *Cruzia tentaculata*, *Toxascaris leonina*, *Skrjabinoptera (Didelphysoma) phrynosoma*, and *Physaloptera (Turgida) turgida*.

B.G.P.

(165b) This brief survey of the human population of the Mezquital Valley, based on 362 faecal examinations, supplements an earlier survey of children from the same region [see Helm. Abs., Vol. V., No. 281a]. The 195 positive findings involved mainly *Ascaris*, *Trichuris*, and *Hymenolepis nana*.

B.G.P.

166—Annales de Médecine et de Pharmacie Coloniales.

- a. FARGES, 1937.—“Essais et résultats de diverses posologies dans le traitement des bilharzioses par l’anthiomaline à la Côte d’Ivoire.” 35 (1), 196-210.
- b. MARCHAT, J. & COUZI, G., 1937.—“La bilharziose vésicale au 12e Régiment de Tirailleurs Sénégalais. Sterilisation par l’anthiomaline.” 35 (1), 211-223.

(166a) Farges has found Anthiomaline to be a safe and effective cure for bilharziosis. He recommends that intramuscular injections should be made twice weekly, starting off with a dose of 1 c.c. per 10 kilo body weight. This dose can be reduced if slight toxic symptoms are observed.

K.S.

(166b) Marchat & Couzi have found that Anthiomaline is a safe and practical drug for use in the treatment of bilharziosis in army hospitals. After a series of experiments they have adopted the following doses which they claim to be 100% effective. Nine intramuscular injections are given every other day, viz., one of 0.12 g., two of 0.18 g., three of 0.24 g. and three of 0.3 g.

K.S.

167—Annales de Parasitologie Humaine et Comparée.

- a. IAMANDI, G. G. & TECLU, M., 1937.—“L’ophtalmie vermineuse des ruminants en Roumanie.” 15 (4), 330-332.
- b. DUBOIS, G., 1937.—“Étude de quelques strigéidés d’Australie et notes sur le genre *Fibricola* Dubois 1932.” 15 (3), 231-247; (4), 333-353.
- c. BERGHE, L. VAN DEN, 1937.—“Quelques faits nouveaux concernant la migration et la ponte des schistosomes.” 15 (4), 354-362.

- d. HONESS, R. F., 1937.—“Un nouveau cestode : *Fosser angertrudae* n.g., n. sp. du blaireau d'Amérique *Taxidea taxus taxus* (Schreber 1778).” 15 (4), 363-366.
- e. GALLIEN, L., 1937.—“Rectification de nomenclature. *Pseudobothrium* L. Gallien 1937, nec Jules Guiart 1935, remplacé par *Leptobothrium* L. Gallien 1937 nom. nov.” 15 (4), p. 383.
- f. GALLIARD, H., 1937.—“*Onchocerca cebei*, espèce nouvelle, parasite des buffles du Tonkin.” 15 (5), 431-433.
- g. PAVLOV, P., 1937.—“Recherches expérimentales sur la trichinose des volailles.” 15 (5), 434-439.
- h. PAVLOV, P., 1937.—“Recherches expérimentales sur la trichinose des volailles et des vertébrés à sang froid.” 15 (5), 440-447.
- i. PAVLOV, P., 1937.—“Recherches expérimentales sur l'immunité dans la trichinose.” 15 (5), 448-452.

(167a) Of 2,354 ruminants examined in Romania, Iamandi & Teclu have found *Thelazia rhodesi* in 507, of which 156 showed lesions. The parasites, which were usually in the conjunctival sac, were removed from living animals by irrigation and from dead by inserting a finger into the sac. Symptoms are more marked in heavy or long-standing infections, and increase during the autumn. Dissection revealed parasites also in the tear gland and duct, in the globe (cornea, anterior chamber, crystalline), and on the nasal and buccal mucosa. Successful treatment involves frequently repeated ocular instillation and nasal atomization of a solution of 1 g. thymol in 150 g. neutral glycerine.

B.G.P.

(167b) In the first part of this paper Dubois describes six species of the genus *Strigea*, viz., *S. promiscua* Nicoll, 1914, *S. baylisi* n. sp., *S. suttoni* n. sp., *S. nicolli* n. sp., *S. glandulosa* n. sp., *S. falconis* Szidat, 1928. In the second part he describes *Neodiplostomum brachyurum* (Nicoll, 1914), *N. australiense* (Dubois, 1937), *Posthodiplostomum australe* (Dubois, 1937), *Fibricola minor* (Dubois, 1936) and *F. cratera* (Barker & Noll, 1915) Dubois, 1932. E.M.S.

(167c) Van den Berghe has made the following new observations on the migrations and egg-laying of schistosomes : (i) Two females of *S. bovis* have been found with respectively one and two uterine eggs lying with the spine directed anteriorly, without damage to the uterus. The orientation of the spine is probably of small importance in the migration of eggs towards the mucosa. (ii) Females of *S. margrebiewi* have been found outside of blood vessels and probably in lymphatics. (iii) In heavy infections of *S. mansoni* in man the parasites are distributed throughout the portal system (including liver) and do not predominate in the inferior mesenteric vein, as they may do in light infections.

His observations show that in the three above species solitary females are commoner than males near the intestine, and males than females in the liver. Paired worms are to be found in the larger mesenteric vessels. Eggs in the liver are mainly laid there though some may be washed back there by the portal blood.

B.G.P.

(167d) Honess describes *Fosser angertrudae* n. g., n. sp., a new taeniid from the intestine of the American badger, *Taxidea taxus taxus*. The scolex bears a single circlet of large hooks, there being no evidence of the existence of a second ring.

E.M.S.

(167e) The name *Pseudobothrium* Gallien, 1937 (Monogenea) [see Helm. Abs., Vol. VI., No. 3c] being preoccupied by that of Guiart, 1935 (Cestoda), Gallien now proposes *Leptobothrium* nom. nov. in its place. B.G.P.

(167f) Galliard describes a new species of *Onchocerca* from subcutaneous tumours in buffalos in Tonkin. At the Hanoi abattoirs 20% to 50% of the buffalos were infected. The new species differs from *O. gibsoni* and *O. indica* in the dimensions of its longer spicule (330 to 360 μ long) and in the relative dimensions of its two spicules. J.J.C.B.

(167g) Pavlov has been able to infect pigeons, magpies and crows with *Trichinella*, these birds possessing a relative immunity only. *Trichinæ* develop in birds in the same period of time as in normal hosts, but the larvae are thin, not spirally coiled and without capsules. They are found mainly in the muscles of the head and neck. The amount of calcium available in the host perhaps plays some part in capsule formation, but the absence of capsules in birds is due probably to the close texture of the muscle fibres, which also prevents the spiral coiling of the larvae. Lowering of body temperature, hunger and conditions in the alimentary canal do not exercise any marked influence on muscle invasion by the larvae. V.D.S.

(167h) Further experiments have borne out Pavlov's previous conclusions that immunity to trichinosis in birds is relative only; it is, however, almost absolute when the muscles are being invaded, and larvae recovered from the muscles are often dead. Fishes and *Rana esculenta* possess a natural absolute immunity against intestinal and muscular trichinosis. Larvae injected intramuscularly into white rats, pigeons and *Rana* disappear after seven days and are destroyed in the host, but larvae injected with gastric juice intramuscularly into *Rana* persist for 28 days after injection, though the majority are decomposed after this period. V.D.S.

(167i) Pavlov has shown that a considerable degree of immunity may be conferred against muscular trichinosis in white rats by an intramuscular injection of 1,000 living larvae; this immunity is greater than that induced by injection of *Trichinella* antigen prepared artificially in various ways. V.D.S.

168—Annali d'Igiene.

a. FAVIA, N., 1937.—“Su di un focolaio agricolo di anchilostomiasi.” 47 (8), 365-369.

(168a) An endemic focus of hookworm infection is reported in the region of Sora in the province of Frosinone in Italy. R.T.L.

169—Annals and Magazine of Natural History.

a. PANDE, B. P., 1937.—“A note on a new genus of bat trematodes.” Ser. 10, 20 (116), 235-238.
 b. PANDE, B. P., 1937.—“On the morphology and systematic position of a new bladder fluke from an Indian frog.” Ser. 10, 20 (117), 250-256.

(169a)* Pande describes *Vesperugidendrium indicum* n. g., n. sp. from *Vesperugo abranus*. The genus is referred to the Lecithodendriidae. The acetabulum is produced on either side into a sucker-like pocket, and the genital pore opens into this acetabular apparatus. E.M.S.

(169b) Pande concludes that *Gorgoderina* Looss, 1902 is synonymous with *Phyllodistomum* Braun, 1899. He describes *Phyllodistomum almorii* n. sp. which belongs to the genus *Gorgoderina* as at present understood.

E.M.S.

170—Annals of Tropical Medicine and Parasitology.

- a. SOUTHWELL, T. & KIRSHNER, A., 1937.—“A description of a new species of amphistome, *Chiorchis purvisi*, with notes on the classification of the genera within the group.” 31 (2), 215-244.
- b. SOUTHWELL, T. & KIRSHNER, A., 1937.—“On some parasitic worms found in *Xenopus laevis*, the South African clawed toad.” 31 (2), 245-265.

(170a) *Chiorchis purvisi* n. sp. is described from a Malayan tortoise *Heosemys grandis*. The historical basis of the classification of amphistomes is reviewed and a new classification is proposed. Three families, 11 subfamilies and 24 genera are recognized. (i) Paramphistomidae is divided into Paracotylinae n. subf., Opistholebetinae and Paramphistominae. (ii) Gastrothylacidae includes only *Gastrothylax*, and (iii) Cladorchidae includes Stephanopharynginae, Brumptinae, Kalitrematinae, Balanorchinae, Gastrodiscinae, Diplodiscinae and Cladorchinae. The genus *Pseudodiscus* includes as synonyms *Pseudocladorchis*, *Cleptodiscus*, *Pfenderius* and *Wardius*. *Cladorchis* includes *Stichorchis*, *Taxorchis*, *Dadayius* and *Chiostichorchis*, while *Chiorchis* includes *Microrchis*, *Hawkesius*, *Schizamphistomum*, *Alassostoma*, *Schizamphistomoides*, *Tugumaea*, *Ophioxenos*, *Dadaytrema*, *Travassosinia* and *Nematophila*. The genus *Stunkardia* is identical with *Zygocotyle*, and *Megalodiscus* with *Diplodiscus*. A table is added giving a list of the known amphistomes of reptiles.

R.T.L.

(170b) Southwell & Kirshner record from *Xenopus laevis* the following: a strigeid metacercaria (*Diplostomulum*) from the pericardial sac—probably a species of *Alaria*; *Procamallanus slomei* n. sp. from the stomach; *Camallanus kaapstaadi* n. sp. also from the stomach; *Cephalochlamys namaquensis*, the egg of this cestode having no operculum but a micropyle at one end. They discuss types of strigeid life-histories and larvae in relation to the metacercariae found. *Thelazo* Pearse is regarded as a synonym of *Procamallanus*.

B.G.P.

171—Archiv für Schiffs- und Tropen-Hygiene.

- a. OTTO, J. H. F., 1937.—“Über den chinesischen Leberegel *Opisthorchis sinensis*. Zur Entstehung, Erkennung und Behandlung der durch ihn bedingten Krankheit.” 41 (7), 481-505; (8), 552-565.

(171a) Otto's review of clonorchiasis deals with the life-history of the parasite, listing the 1st and 2nd intermediaries, the incidence of the disease in Canton province, its pathology, clinical diagnosis, and treatment. The review closes with 8 closely printed pages of references.

B.G.P.

172—Archives of Neurology and Psychiatry. Chicago.

- a. MOST, H. & ABELES, M. M., 1937.—“Trichiniasis involving the nervous system. A clinical and neuropathologic review, with report of two cases.” 37 (3), 589-616.

(172a) A useful review is given of previous records of involvement of the nervous system in trichiniasis, followed by a report of two cases with the attendant clinical and pathological features, in which mental and neurologic signs predominated. No trichinae were found in the spinal fluid, but examination of the brain of one case which terminated fatally revealed trichina larvae in the brain substance with characteristic pathological changes of the tissue resembling acute nonsuppurative encephalitis. This fatal case showed two unusual clinical features, massive anasarca and other changes simulating the wet form of beriberi, and the failure of development of eosinophilia.

V.D.S.

173—Australian Veterinary Journal.

- a. KAUZAL, G. P., 1937.—“A preliminary study of the pathogenic effect of *Nematodirus* spp. in sheep.” 13 (3), 120-123.
- b. GRAHAM, N. P. H. & GORDON, H. McL., 1937.—“Photosensitization associated with occlusion of the bile duct of a Merino wether.” 13 (3), p. 125.
- c. GORDON, H. McL., 1937.—“Intussusception associated with oesophagostomiasis.” 13 (3), p. 126.
- d. ROBERTS, F. H. S., 1937.—“A note on the occurrence of enterohepatitis or ‘blackhead’ in chickens.” 13 (4), 158-161.

(173a) Kauzal's experimental infections of sheep with *Nematodirus* spp. shows that there was no appreciable effect on the body weight of the infected compared with the non-infected animals. Although infections produced were not as heavy as those encountered in the field, these results lead him to regard *Nematodirus* spp. as of low pathogenic importance. The first appearance of eggs was 29 days after infection. A maximum was reached in 30 to 69 days and the faeces were practically negative in 126 days.

J.W.G.L.

(173b) Graham & Gordon record a case of photosensitization in an aged Merino wether. Degenerated calcified *Cysticercus tenuicollis* cysts were found in the liver and attached to the omentum. One was found encircling and practically occluding the bile duct. The gall bladder and bile ducts were distended with bile and contained 15 to 20 gall stones.

J.W.G.L.

(173d) Roberts describes an epidemic of blackhead among experimental chickens which had been used for an investigation of the pathology of *Heterakis gallinae*, which is the carrier of this disease. Lesions were always present in the caeca, but liver lesions were occasionally absent.

P.A.C.

174—Berliner Tierärztliche Wochenschrift.

- a. SALHOFF, S., 1937.—“Fakultativer Parasitismus von Anguilluliden bei einer Hauterkrankung des Pferdes.” Jahrg. 1937 (33), 505-506.
- b. LENTZ, R. W., 1937.—“Arbeiten über Schweinekrankheiten im Jahre 1936. Kritisches Sammelreferat.” Jahrg. 1937 (35), 534-538.
- c. SARNOWSKI, v., 1937.—“Die arzneiliche Behandlung des Wurmbefalls der Pferde, insbesondere der Strongylose, und Allegan-Tafeln.” Jahrg. 1937 (38), 577-580; (39), 593-596.

(174a) Salhoff records the presence of small nematodes in a wet sore on the hind quarters of a horse which persisted for some years and proved refractory to treatment. A brief description of the worms is given. From their size and structure the author regards them as probably belonging to the genus *Rhabditis*, though an accurate identification was not made. T.G.

(174c) Allegan, which is one of the arsanilic acid derivatives and contains 20% of arsenic, has been tested against Strongylidae in 19 horses and is considered to be an effective remedy. Prophylactic measures must accompany treatment. For success Allegan must be given in exact doses, viz., 15 to 20 g. for foals under one year, and 25 to 30 g. for those of 1 to 2 years. The most effective dose is 65 mg. per kilo of body weight. R.T.L.

175 Bulletin de l'Académie Vétérinaire de France.

a. VELU, H. & ZOTTNER, G., 1937.—“Les pyréthrine et la prophylaxie de la strongylose pulmonaire.” **10** (1), 53-58.

(175a) Velu & Zottner report on the successful treatment of *Dictyocaulus* infested sheep, with 10 c.c. of a 0.01% solution of pyrethrine in distilled water, provided that the dose is injected intra-nasally when the sheep is in a sitting position. The dose may have to be repeated if infestation is heavy, but in all cases treated no further symptoms of verminous bronchitis have been seen after the third dose. K.S.

176 Bulletin. California Agricultural Experiment Station.

a. FREEBORN, S. B. & STEWART, M. A., 1937.—“The nematodes and certain other parasites of sheep.” No. 603, 75 pp.

(176a) This bulletin is a comprehensive semi-popular description of the life-history, diagnosis, symptoms and treatment of the nematodes of sheep. Descriptions of *Fasciola hepatica*, *Moniczia expansa* and *Thysanosoma actinoides* are also included. Post mortem technique is described, the object being to aid the Californian farmer in diagnosing helminth parasites that may be found in his flock. J.W.G.L.

177 Bulletin de la Société Médico-Chirurgicale de l'Indochine.

a. ROTON & MIENG, 1937.—“Subocclusion du grêle et accidents graves dus à la présence de 826 ascaris.” **15** (3), 231-232.

(177a) Roton & Mieng describe a case of ascariasis in a man from whom 536 worms were removed by surgical operation and a further 290 by means of santonin. The bowel was completely occluded. P.A.C.

178—Bulletin de la Société de Pathologie Exotique.

a. LEGENDRE, F., 1937.—“Le parasitisme intestinal au Cambodge.” **30** (7), 570-572.
 b. GALLIARD, H., 1937.—“Distribution géographique de *Filaria malayi* et de *Filaria bancrofti* au Tonkin.” **30** (7), 573-577.

(178b) *Filaria malayi* is common in the blood of inhabitants of Tonkin, 62 cases, i.e. 4.5%, occurring in 1,363 persons, whereas *F. bancrofti* only occurred in 37, i.e. 2.71%. Infection with *F. malayi* in the delta of the Red River is also very frequent, but it is almost non-existent around Hanoi.

R.T.L.

179—Bulletin. University of Florida Agricultural Experiment Station.

- a. TOWNSEND, G. R., 1937.—“Development of the root-knot nematode on beans as affected by soil temperature.” No. 309, 15 pp.
- b. WATSON, J. R. & GOFF, C. C., 1937.—“Control of root-knot in Florida.” No. 311, 22 pp.

(179a) Townsend studied the effects of soil temperature on *Heterodera marioni* under field conditions and found that the rate of development, and consequently the number of generations produced in one season, was controlled by temperature. Snap beans, *Phaseolus vulgaris*, were the host plants in these experiments. Development can proceed to some extent at temperature as low as 12°C. Above 12°C. development is proportional to hour-centrigrade units—these are calculated by multiplying the degree centigrade above 10°C. by the duration of exposure in hours. A mean soil temperature of 20°C. for the year would allow the development of 6 generations. In Southern Florida, where the mean soil temperature is about 25°C., 10 or 12 generations may develop. M.J.T.

(179b) Watson & Goff discuss methods of controlling *Heterodera marioni*. Rotation with immune and resistant crops, combined with summer fallow and weed control is recommended; flooding for 22.5 months gives complete control. Heating the soil, steam sterilization, etc., are recommended for small scale operations. Chemical control of *H. marioni* in seedbeds can be effected by saturating the soil with a solution of sodium cyanide immediately followed by a solution of ammonium sulphate. Carbon bisulphide gives satisfactory results; sulphur applied at 250 to 500 lb. per acre and calcium cyanamide at 1,000 lb. to 1 ton per acre give some control. M.J.T.

180—Canadian Journal of Research. Section D. Zoological Sciences.

- a. PARRELL, I. W., 1937.—“Studies on the bionomics and control of the bursate nematodes of horses and sheep. IV. On the lethal effects of some nitrogenous fertilizers on the free-living stages of sclerostomes.” 15 (7), 127-145.
- b. GRIFFITHS, H. J., 1937.—“Some observations on the overwintering of certain helminth parasites of sheep in Canada.” 15 (8), 156-162.

(180a) The action of nitrogenous fertilizers on 40 gram cultures of fresh horse faeces is shown by Parnell to be effective in the control of sclerostomes in the following proportions: Urea, 1 to 125 parts fresh faeces; calcium cyanamide, 1 : 50; potassium nitrate, sodium nitrate and Calnitro, 1 : 20; calcium nitrate and diammonium phosphate, 1 : 17; nitro chalk, about 1 : 16 (but not used in strong solution); ammonium sulphate, 1 : 14. In practice these substances would only be of value in sterilizing the bottom,

top and sides of a well made manure heap, the sclerostomes in the rest of the clamp being destroyed by heat fermentation, etc.

J.W.G.L.

(180b) Sheep reared free from bursate nematodes were pastured on plots that had been rested from sheep during the four months period of winter, the temperature varying between -15° F. and 52.5° F. Subsequent infection with *Moniezia expansa*, *Ostertagia circumcincta*, *Nematodirus filicollis* and *Trichostrongylus colubriformis* showed that these species can withstand exposure on pasture to a normal Canadian winter.

J.W.G.L.

181—Canadian Mining Journal.

a. PARNELL, I. W., 1937.—“Some notes on worms liable to affect miners and some chemical speculations on hookworm control in mines.” 58 (5), 242-246.

(181a) Parnell's paper is mainly concerned with hookworm disease in miners and its control. He briefly outlines the life-history and pathogenicity, refers to the widespread use in mines of common salt to kill the extracorporeal stages, and concludes with a list of substances which he has used for controlling horse strongyle larvae. These substances are arranged in groups prefixed by a number which shows the weight-equivalent of the substance in respect of its anti-strongyle action, taking common salt to be 100. Thus, at the two extremes, chloropicrin has the equivalent 1, and hydrated lime 1,700. There is also a short list of substances of no value.

B.G.P.

182—Circular. Hawaii Agricultural Experiment Station.

a. ALICATA, J. E., 1937.—“The gizzard-worm, *Cheilospirura hamulosa*, and its transmission to chickens in Hawaii.” No. 11, 7 pp.

(182a) Alicata records an increase in infestation of poultry in Hawaiian islands with the gizzard worm, *Cheilospirura hamulosa*. The flour beetle, *Tenebroides nana*, the sand hopper, *Orchestia platensis*, and certain species of grasshoppers were found to be naturally infected with the larva, while experimental studies show that the following members of the insect fauna of the islands are possible vectors: 3 grasshoppers, 1 amphipod, 3 flour beetles, 5 manure beetles and 2 weevils.

P.A.C.

183—Circular. Illinois Agricultural Experiment Station.

a. GRAHAM, R., TORREY, J. P., MIZELLE, J. D. & MICHAEL, V. M., 1937.—“Internal parasites of poultry.” No. 469, 50 pp.

(183a) Graham and his collaborators have produced a good circular dealing with the helminth parasites of poultry. After describing each one individually, its life history, pathology, prevention and treatment are considered. They stress the fact that good sanitation is the most effective weapon in preventing the spread of these helminths, medication taking a second place. Details of suitable control measures are given while the commoner intermediate hosts are described and figured.

P.A.C.

184 Cornell Veterinarian.

- a. CANGI, C. W., 1937.—“Treatment for whip worms in the dog by intracaecal injection.” *27* (1), 21-24.
- b. FENSTERMACHER, R., 1937.—“Further studies of diseases affecting moose. II.” *27* (1), 25-37.
- c. BAKER, D. W. & FINCHER, M. G., 1937.—“Case reports. Parasitism.” *27* (1), 75-80.

(184a) Cangi reports on 21 cases of whipworm in the dog treated by injections into the caecum of a suspension of santonin in glycerine and water. Six cases were definite failures, 3 possible reinfections, and 12 possibly successful.

J.W.G.L.

(184b) Fenstermacher supplements his earlier records of diseases in moose [see Helm. Abs., Vol. II., No. 236a; Vol. III., No. 199a] with details of five further animals, bringing the total to 23. The helminths reported are the same as previously with the exception of immature female nematodes from the anterior chamber of the eye. From head characters and the posteriorly situated vulva, Dikmans & Wehr [see Helm. Abs., Vol. IV., No. 551] consider these to be a species of *Elaphostrongylus*. Hydatid, occurring only in the lungs, is considered a parasite of major importance.

B.G.P.

(184c) A case of hyper-parasitism in a two-year-old mare, with counts of worms found at autopsy, is given by Baker & Fincher. In addition to bots, 14,000 worms of various kinds were found, excluding larvae.

B.G.P.

185 Edinburgh Medical Journal.

- a. GREIG, E. D. W., 1937.—“Clinical recollections and reflections. XVI. Cysticercosis and epilepsy.” *44* (8), 522-529.

(185a) The object of this paper is to direct the attention of practitioners to the subject of cysticercosis, its symptoms and diagnosis.

R.T.L.

186 Farming in South Africa.

- a. MÖNNIG, H. O., 1937.—“Internal parasites of dogs and cats.” *12* (137), 327-328.

187 Fukuoka-Ikwadaigaku-Zasshi.

- a. OKABE, K., 1937.—“On the clonorchiasis in Yanagawa district, Fukuoka Prefecture.” *30* (1), 151-155. [In Japanese: English summary p. 7.]

(187a) In the Yanagawa district of the Prefecture of Fukuoka in Japan, Okabe finds that the first intermediary of *Clonorchis sinensis* is *Bulinus (Parafossarulus) striatulus japonicus* and *Pseudorasbora parva* the second intermediary. Dogs, cats, rabbits and white rats were experimentally infected.

R.T.L.

188—Geneeskundig Tijdschrift voor Nederlandsch-Indië.

- a. TESCH, J. W., 1937.—“Over filariasis en elephantiasis bij een geimporteerde Javaansche bevolking in Celebes.” 77 (24), 1434-1461. [English summary pp. 1460-1461.]
- b. BRUG, S. L., 1937.—“De overbrenging van *Filaria malayi* te Kalawara (o.a. Paloe, Res. Menado).” 77 (24), 1462-1470. [English summary p. 1470.]
- c. GONGGRIJP, L. & SOEDIGDO, R., 1937.—“De eosine-methode ter bepaling der mijnworminfectie eener bevolking.” 77 (26), 1586-1595.

(188a) Tesch finds that Filariasis malayi and elephantiasis are common amongst Javanese immigrants into Celebes, especially in regions of low altitude. The data are analysed and discussed in some detail. B.G.P.

(188b) Brug found that in Kalawara (Celebes) the carrier of *Filaria malayi* is chiefly *Anopheles barbirostris*, which rarely attacks man in other parts of the Archipelago. The infection indices were: Experimental, 99% (development in 6.5 to 8.5 days); Natural, 8.1%. Conversely, *A. bancrofti* appears not to bite man in Celebes. B.G.P.

(188c) Gonggrijp & Soedigdo describe a method of assessing the intensity of hookworm infection; the method is said to be twice as rapid as the Stoll technique and much cleaner. From each faecal sample three direct smears are made and stained with 2% eosin solution. Smears are graded according to egg-content into three groups: o, a=less than 10 eggs, and b=10 or more eggs. Thus, for any one sample, ten combinations of o, a and b are possible, but in practice these reduce to seven, since o is not found associated with b. The seven combinations are equated with four intensities of infection as follows: (i) Light or absent: ooo; (ii) Moderate ooa & oaa; (iii) Heavy: aaa; (iv) Very heavy: aab, abb & bbb. This and the Stoll technique were applied to some hundreds of patients and the results are co-ordinated in tables and diagrams. The authors surprisingly state that Stoll's method presupposes “Monogamy in the ancylostome world”!

B.G.P.

189—Indian Journal of Medical Research.

- a. MAPLESTONE, P. A. & BHADURI, N. V., 1937.—“*Taenia solium* and *Cysticercus cellulosae* in India.” 25 (1), 155-161.

(189a) In view of the attention which has been given recently to cerebral symptoms associated with *Cysticercus cellulosae* in British troops returning from India, Maplestone & Bhaduri have made a useful summary of records of the occurrence of *Cysticercus cellulosae* and of *Taenia solium* in India. This reveals an apparent rarity of records of *Taenia solium* in the indigenous population and the relative frequency of *C. cellulosae* in pigs slaughtered in various parts of India. Of 82 cases of cysticercosis in British soldiers there was evidence of previous infection with *T. solium* in 22 cases. Attention is also called to the recorded fact that while most of the British cases were infected in Northern India the recorded indigenous cases all occurred in the Madras Presidency. R.T.L.

190—Indian Journal of Veterinary Science and Animal Husbandry.

- a. BHATTACHARJEE, J., 1937.—“A check-list of the nematode parasites of the domesticated animals in Burma.” 7 (2), 87-96.
- b. RAO, M. A. N., 1937.—“A preliminary report on canine schistosomiasis in the Madras Presidency.” 7 (2), 109-112.

(190b) A second case of canine schistosomiasis in India is recorded. The ova found in the faeces resembled those of *S. suis* and gave rise to frequent attacks of dysentery. The ovum and miracidium are described. There is no “ciliary girdle” in the miracidium. R.T.L.

191—Indian Medical Gazette.

- a. TAYLOR, A. C., 1937.—“Hydatid disease. A case report.” 72 (7), 413-416.

192—Indian Veterinary Journal.

- a. BHATTACHARJEE, J., 1937.—“A check-list of the trematode and cestode parasites of the domesticated animals in Burma.” 14 (1), 1-10.
- b. ABDUL AZIZ KHAN, M., 1937.—“Filaria oculi.” 14 (1), 56-57.
- c. SWARUP, R., 1937.—“Use of Deodar oil in veterinary practice.” 14 (1), 57-58.
- d. KAKA, A. G., 1937.—“Antimosan in a case of microfilaria in a dog.” 14 (1), 60-61.

(192a) Bhattacharjee gives a list of the trematode and cestode parasites hitherto recorded from Burma in the elephant, cattle, buffalo, sheep, goat, horse, dog, cat and pig. He also records for the first time in Burma the following parasites: *Cotylophoron cotoylophorum*, *Fischoederius elongatus*, *Gastrodiscus aegyptiacus*, *Homalogaster* sp., *Schistosoma bovis*, *Anoplocephala perfoliata*, *Moniezia benedeni* and *Diphyllobothrium latum*. J.W.G.L.

(192b) Abdul Aziz Khan records a successful operation on the eye of a horse for the removal of a specimen of *Filaria oculi*. J.W.G.L.

(192c) Swarup states that 3 dr. Deodar oil with 2 dr. *Spiritus Aetheris Nitrosi* in 4 to 6 oz. of linseed oil is a good anthelmintic for ascaris in buffalo calves. J.W.G.L.

(192d) Kaka records the successful treatment of filariasis in a 60 lb. dog by 5 intramuscular injections of 6 c.c. Antimosan given at intervals of 3 to 4 days. J.W.G.L.

193—Journal of the American Medical Association.

- a. MAGATH, T. B., 1937.—“Encysted trichinae: their incidence in a private practice and the bearing of this on the interpretation of diagnostic tests.” 108 (23), 1964-1967.
- b. WRIGHT, W. H., BOZICEVICH, J. & GORDON, L. S., 1937.—“Studies on oxyuriasis. V. Therapy with single doses of tetrachlorethylene.” 109 (8), 570-573.

(193a) Post-mortem examination of the muscles of 220 patients who died from various causes in the Mayo Clinic revealed an incidence of infection with trichinae of 8%, a figure probably too low since small portions of muscles

were examined microscopically only. In a few positive cases the diaphragm was apparently not infected. From available knowledge it is evident that 10 to 20% of the adult population of the U.S.A. have acquired trichinæ, and though some persons have shown more or less typical symptoms of trichinosis, the majority have shown no signs of infection having taken place. Eosinophilia of more than 10%, and especially rapidly rising eosinophilia, suggests trichinosis and also a skin test positive in a dilution of antigen of 1:10,000, and a history of having eaten undercooked pork; the final proof however, still remains in the demonstration of trichinæ in the body of the patient. V.D.S.

(193b) Tetrachlorethylene administered orally in single doses at the rate of 0.1 c.c. for each year of apparent age was more effective in eradicating relatively light infections with *Oxyuris vermicularis* than in curing relatively heavy infestations. The drug induced disagreeable reactions when administered in a solution of magnesium sulphate, which were largely avoided by the substitution of citrate of magnesia as a purgative. R.T.L.

194—Journal of the American Pharmaceutical Association.

a. BUTZ, L. W. & LA LANDE, jr., W. A., 1937.—“Anthelmintics II. A comparison of certain ozonides, chenopodium oil and diheptanol peroxide.” *26* (2), 114-121.

(194a) Butz & La Lande have found that anthelmintic properties are common to many ozonides and peroxides. In a series of *in vitro* tests using swine ascarids, the worms were all paralyzed and killed by the ozonides, peroxides and ozonized vegetable oils used in the tests. Experiments were also carried out in young puppies heavily infested with *Toxocara canis* which proved that ozonized cottonseed oil and diheptanol peroxide both have a higher therapeutic index in this infestation than oil of chenopodium. K.S.

195—Journal of the Council for Scientific and Industrial Research.

a. ANON, 1937.—“Enema treatment against nodule worm (*Oesophagostomum columbianum*).” *10* (3), p. 253.
 b. ANON, 1937.—“Worms in sheep—the use of bluestone and nicotine sulphate.” *10* (3), 253-254.

(195a) Following earlier work on this subject further experience shows that it is the volume of the enema that is most important in the treatment of *Oesophagostomum columbianum* in sheep when using the sodium arsenite solution (2 to 4 grains per quart of water). The enema should be given slowly in doses of 1 pint to 2 quarts according to the size of the sheep. J.W.G.L.

(195b) A note is given on experiments carried out at the McMaster Laboratory, where a mixture of bluestone and nicotine sulphate has been found to be a reasonably efficient anthelmintic against *Trichostrongylus* spp., *Moniezia* spp., and *Haemonchus contortus* in sheep. It is recommended, however, that the mixture should not be used when sheep are anaemic owing to heavy infestation with *H. contortus*, as nicotine poisoning is then very liable to occur. No details of the experiments are given. K.S.

196—Journal of Helminthology.

- a. GOODEY, T., 1937.—“On *Anguillulina mahogani* (Cobb, 1920).” **15** (3), 133-136.
- b. GOODEY, T., 1937.—“Two methods for staining nematodes in plant tissues.” **15** (3), 137-144.
- c. ANDREWS, M. N., 1937.—“The helminth parasites of dogs and cats in Shanghai, China.” **15** (3), 145-152.
- d. LEIPER, J. W. G., 1937.—“On the value of various chemical substances as a means of destroying infective larvae of horse sclerostomes in the field.” **15** (3), 153-166.
- e. ANDREWS, M. N., 1937.—“Hyper-infection of dogs with the microfilariae of *Dirofilaria immitis*.” **15** (3), 167-168.
- f. FENWICK, D. W., 1937.—“A census of intestinal parasites of lambs in South Wales.” **15** (3), 169-176.

(196a) Goodey describes and figures the adults of *Anguillulina mahogani* and indicates the chief anatomical points in which this species differs from the closely related *A. pratensis*. *A. mahogani* causes lesions in the bark and wood of the Honduras mahogany (*Swietenia Mahogoni* Jacq.) growing in Barbados.

T.G.

(196b) Goodey describes two methods for staining nematodes in plant tissues. The first is applicable to roots and is a method used by mycologists for staining fungal hyphae. Roots are boiled for 1 minute in cotton blue-lactophenol or acid fuchsin-lactophenol and after washing and processing through graded alcohols are finally mounted in Canada balsam. The second method is used for staining nematodes in shoot structures. The latter, either fresh or preserved material, are taken up to 70% alcohol and are then stained for a few hours in a saturated solution of Scarlet R. in 70% alcohol. The contained nematodes are stained red, whilst the plant tissues are unstained. Details are given of the technique whereby preparations may be finally mounted in Euparal or in glycerine jelly.

T.G.

(196c) Dr. Mary Andrews gives a brief account of the helminth parasites found post mortem in 590 dogs and 185 cats from the City of Shanghai. The commonest parasites of the dog were *Echinocasmus* (36%), *Ancylostoma caninum* (39%), and *Dipylidium caninum* (59%). *Clonorchis sinensis* occurred in 15.25% of the dogs and 79% of the cats. Other common parasites in the cat were *Echinocasmus* (44%), *Dipylidium* (52%), *Taenia* (54%) and *Toxocara* (35%). *Schistosoma japonicum* occurred in 4 dogs, but as the dogs were street dogs this low incidence is misleading. Two Shanghai cats had ova of this trematode in the faeces. *Metorchis albidus* was found occasionally in dogs and cats. Other, rarer, trematodes were *Metagonimus yokogawai*, *Echinostoma ilocanum* and *Prohemistomum industrium*.

R.T.L.

(196d) Leiper found that sodium hypochlorite, although effective in solution in distilled water, was of little value in the presence of organic matter against the infective larvae of horse sclerostomes. Phenol, cresols and various proprietary disinfectants were also ineffective in solutions below 1%.

The only chemical of practical value for field and stable use appeared to be calcium cyanamide which destroyed 70% of the larvae in the grass and

47% in the undergrowth when applied in February at the rate of 7 cwt. per acre. No permanent damage was done to the grass by this dressing and the cost, after allowing for its manurial value to the land, was not excessive.

D.O.M.

(196f) From a study of the intestinal parasites of 83 lambs obtained from a Cardiff abattoir over a period of one year, Fenwick has compiled tables showing the incidence of infection with each of the commoner species for each month. The factors governing the incidence and the localization of each species in the host are also discussed.

D.O.M.

197—Journal de Médecine de Paris.

a. AVELINE, G., 1937.—“Formes insoupçonnées du parasitisme. Une maladie nouvelle : l'anguillulose.” 57 (3), 57-59.

(197a) In a group of chronic cases not susceptible to diagnosis or treatment by ordinary means, Aveline has had recourse to a method of investigation known as “radiaesthesia” which is not described, but is a science “no longer in the embryonic stage.” He uses successively mental radiaesthesia (this is a gift) and physical radiaesthesia (clinically studied by a wireless engineer), and thereby diagnoses various kinds of helminthic and protozoal infections in the absence of eggs, cysts, etc. *Strongyloides* comes into all this as the hitherto unsuspected cause of conditions like facial neuralgia, due to migrations of adults all over the body. If it be objected that these parasites have not been demonstrated *in situ*, “It is true, and we regret it more than anyone.”

B.G.P.

198—Journal of Oriental Medicine.

a. HUKUDA, S. & AKI, K., 1937.—“Ueber die Darm-Parasiteieier die an ‘Tukemono’ haften.” 27 (2), 89-94. [In Japanese : German summary p. 9.]

b. SAI-RYO, 1937.—“Investigations on anemia caused by ancylostomiasis. I. On the blood changes by experimental infection of *A. duodenale*.” 27 (3) 269-278. [In Japanese : English summary p. 24.]

c. SAI-RYO, 1937.—“Investigations on anemia caused by ancylostomiasis. II. The comparison of the blood changes before and after the treatment.” 27 (3), 279-286. [In Japanese : English summary p. 25.]

d. SAI-RYO, 1937.—“Investigations on anemia caused by ancylostomiasis. III. On the egg production of *A. duodenale* and *N. americanus*.” 27 (3), 287-294. [In Japanese : English summary p. 26.]

e. SAI-RYO, 1937.—“Investigations on anemia caused by ancylostomiasis. IV. On the blood sucking activities of *A. caninum*.” 27 (3), 295-302. [In Japanese : English summary p. 27.]

(198a) Hukuda & Aki have found eggs of common human helminths adhering to about 35% of examined “Tukemono” [a vegetable eaten salted] in Dairen. They regard the vegetable, which cannot readily be freed from eggs, as a serious source of infection to Japanese.

B.G.P.

(198b) Of 300 larvae of *Ancylostoma duodenale* placed on the skin of each of 3 volunteers, 295, 292 and 291 penetrated. The adult worms recovered later numbered 83, 78 and 77. The number of days which lapsed between infection and oviposition were 54, 55 and 57. Eosinophilia, which

was recognizable on the 3rd day after infection, reached its maximum in the 6th to 7th week, decreasing after the 15th week. The haemoglobin was reduced very slightly after the 5th to 6th week. The reticulocytes increased after the 3rd week.

R.T.L.

(198c) From a study of 20 cases of single and mixed infection with *Ancylostoma duodenale* and *Necator americanus* Sai Ryo finds that there is no recognizable relationship between the number of worms and the anaemia when the worms are less than 50. With less than 50 worms the anaemia is moderate or very slight. The colour index of the blood does not alter. The erythrocytic sedimentation rate is usually accelerated. The recovery of the blood is not complete until the 6th week while that from the anaemia is remarkable. The anaemia caused by hookworm resembles that caused by continuous bleeding.

R.T.L.

(198d) Using Wakeshima's method of computing the eggs of hookworm Sai Ryo finds that the daily output of eggs by *Ancylostoma duodenale* is about 1,000 to 2,000 while in *Necator americanus* it is 5,000.

R.T.L.

(198e) The blood sucking activity of *Ancylostoma caninum* is enormously affected by temperature, and 38°C. to 39°C. is most favourable. Females absorb more blood than male worms. Every worm ejects the blood rhythmically from the anus. The blood loss caused by the attachment of the worm to the mucosa is not a negligible factor in hookworm anaemia. It is calculated that the blood loss per worm per day is 0.38 c.c. of which 0.149 c.c. is passed by the worm and 0.235 c.c. is lost from the site of attachment.

R.T.L.

199—Journal of Parasitology.

- a. CAMPBELL, D. H., 1937.—“The immunological specificity of a polysaccharide fraction from some common parasitic helminths.” *23* (4), 348-353.
- b. FOSTER, A. O. & ORTIZ O., P., 1937.—“A further report on the parasites of a selected group of equines in Panama.” *23* (4), 360-364.
- c. LEVINE, P. P., 1937.—“The viability of the ova of *Ascaridia lineata* when exposed to various environmental conditions.” *23* (4), 368-375.
- d. LA RUE, G. R. & AMEEL, D. J., 1937.—“The distribution of *Paragonimus*.” *23* (4), 382-388.
- e. CRAWFORD, W. W., 1937.—“A further contribution to the life history of *Alloglossidium corti* (Lamont), with especial reference to dragonfly nauplii as second intermediate hosts.” *23* (4), 389-399.
- f. PARK, J. T., 1937.—“A revision of the genus *Podocotyle* (Allocereidae), with a description of eight new species from tide pool fishes from Dillon's Beach, California.” *23* (4), 405-422.
- g. BEAVER, P., 1937.—“Experiments on regeneration in the trematode, *Echinostoma revolutum*.” *23* (4), 423-424.
- h. WHITLOCK, S. C., 1937.—“An apparent case of sexual difference in resistance to parasitic infection.” *23* (4), p. 426.
- i. LEVINE, P. P., 1937.—“The effect of various environmental conditions on the viability of the ova of *Capillaria columbae* (Rud.).” *23* (4), 427-428.
- j. THOMAS, L. J., 1937.—“On the life cycle of *Contracaecum spiculigerum* (Rud.).” *23* (4), 429-431.
- k. YAMAGUTI, S., 1937.—“On the second intermediate host of *Loxogenes liberum* Seno, 1907.” *23* (4), 431-432.
- l. SUMMERS, W. A., 1937.—“A new species of Tetraonchinae from *Lepomis symmetricus*.” *23* (4), 432-434.

(199a) Campbell describes a method of obtaining the polysaccharide fractions of a number of common helminths, which he compares by means of the precipitin ring test in the presence of various antisera. He finds that such fractions show far greater specificity than whole worm extracts, giving reactions only with the homologous antiserum. His results with *Ascaris lumbricoides* and *A. suum* suggest that these two types are not only different biologically but that they contain polysaccharides which are distinct antigenically. This is probably an inherent quality of the worm, but it may be dependent indirectly upon the host. There were no cross reactions between ascarids and cestodes.

P.A.C.

(199b) Foster & Ortiz have made a second quantitative study of the parasites of equines [see Helm. Abs., Vol. V., No. 339d] owned by the Panama Canal Department of the U.S. Army. The findings of the second study agree closely with those of the first. Two further species are, however, recorded, viz., *Cyathostomum tetracanthum* from the dorsal colon of the horse and *Oesophagodontus robustus* from the dorsal colon of the mule. The animals were found to harbour infections similar to those of native stock. J.W.G.L.

(199c) Using eggs of *Ascaridia lineata*, Levine finds that the survival during a severe winter depends upon the stage of development reached. Non-embryonated eggs survive unless they have been previously exposed to sunlight. Such eggs, in the shade, having survived one winter would develop the following summer and need another wintering before being killed. Rapid cooling has a selective action upon eggs, killing *A. lineata* but not touching *Capillaria columbae*.

P.A.C.

(199d) After briefly summarizing the published records dealing with the world distribution of the genus *Paragonimus*, La Rue & Ameel describe the results of an extensive investigation into the distribution of *Paragonimus* in the United States obtained by purchasing crayfish and examining these for metacercariae. The molluscan genus which serves as intermediary is *Pomatiopsis*. It has a more restricted range in North America than mink and crayfish. In Louisiana, Mississippi and West Virginia *Pomatiopsis* is absent although the crayfish are infected.

R.T.L.

(199e) Crawford found the snail *Helisoma trivolvis* bore a light natural infestation of *Alloglossidium corti*, and continued to shed cercariae for 9 months. The natural second host is the dragonfly naiad, *Leucorrhinia intacta*, though several others were experimentally infected. The experimental final host was the tadpole catfish *Schilbeodes gyrinus*. E.M.S.

(199f) Park reviews the genus *Podocotyle* and makes several changes in terminology. He describes *P. endophrysi* n. sp., *P. apodichthysi* n. sp., *P. blennicottusi* n. sp., *P. californica* n. sp., *P. kofoidi* n. sp., *P. elongata* n. sp., *P. pedunculata* n. sp. and *P. pacifica* n. sp.

E.M.S.

(199g) Utilizing *Echinostoma revolutum* of pigeons, Beaver has attempted to determine the general nature and degree of repair which follows on various types of mechanical injury artificially induced. Rapid repair was observed in puncture wounds and deep unilateral incisions. After amputation of the hind portion of the body the wound is entirely closed in about three

days. An outlet for the excretory bladder is established and the cut caeca become closed. No regeneration of the cephalic spines followed their removal.

R.T.L.

(199h) Whitlock has evidence that the female partridge, *Perdix perdix*, is more susceptible to infection with *Syngamus trachea* than the male.

P.A.C.

(199i) Levine notes briefly the effect of drying, freezing, weathering and faecal putrefaction on embryonated ova of *Capillaria columbae*. The lethal effect of exposure to the sun is probably the result of drying.

R.T.L.

(199j) *Contraecum spiculigerum*, a common intestinal parasite of the common cormorant, is acquired in Illinois from encysted larvae in the mesentery of fish, especially of *Dorosoma cepedianum*, *Labistes reticulatus*, *Aplites salmoides*, *Chaenobrytus gulosus* and *Helioperca macrochira*. After 2 moults in the egg, *Contraecum* larvae hatch and are infective to fish.

R.T.L.

(199k) Trematode cysts found in nymphs of *Crocothemis servilia*, from Lake Kobata, proved by experimental feeding to adult *Rana nigromaculata* to be metacercariae of *Loxogenes liberum*.

R.T.L.

(199l) A new species of gyrodactyloid trematode belonging to the Tetraonchinae and collected from the gills of *Lepomis symmetricus* is described as *Actinocleidus triangularis* n. sp. It differs from other species in the size and shape of the anchors.

R.T.L.

200—Journal of the Royal Horticultural Society.

a. WILSON, G. F., 1937.—“The root-knot eelworm, *Heterodera marioni* (Cornu) Goodey, and its relation to plants growing outdoors in the British Isles and in certain European countries.” **62** (8), 336-346.

(200a) Wilson lists 12 species of cultivated plants and 3 species of weeds which have been recorded as hosts of *Heterodera marioni* under field- and garden-culture conditions in the British Isles. Records of the occurrence of this nematode parasitic on plants grown in the open in France, Germany, Denmark, Norway and Austria are also given. Symptoms of attack and life cycle of the parasite are described and methods of dispersal and of control are discussed.

M.J.T.

201—Journal of Tropical Medicine and Hygiene.

a. CAWSTON, F. G., 1937.—“The control of bilharzia infection by natural remedies.” **40** (15), p. 177.

b. HINMAN, E. H., 1937.—“Filarial periodicity.” **40** (17), 200-205.

(201b) After a full and critical review of recent literature Hinman is of opinion that the problem of the mechanism of filarial periodicity is far from settled. In the case of *Dirofilaria immitis* on which Hinman's own experiments and observations have chiefly been made, he concludes that the evidence points strongest to a continuous larval production, but that in *Wuchereria bancrofti* the experimental evidence must be considered inconclusive. Some

original observations are reported in which adult female Dirofilaria were kept in various media, but failed to exhibit cyclical parturition and seldom survived more than 36 hours.

R.T.L.

202—Lancet.

- a. McANALLY, E. A., 1937.—“Quinine for threadworms.” [Correspondence.] 233 (5950), p. 654.
- b. SAMBASIVA RAO, M., 1937.—“Cysticercosis as a possible cause of epilepsy in an Indian.” 233 (5951), p. 689.

(202a) In the experience of McAnally a few doses of ammoniated tincture of quinine, as given for colds, has completely rid patients of all ages of threadworms.

R.T.L.

203—Lingnan Science Journal.

- a. CHEN, H. T., 1937.—“New species of *Capillaria* (Nematoda : Trichuroidea) from the Chinese shrew, *Suncus coeruleus*.” 16 (2), 149-153.
- b. CHEN, H. T., 1937.—“Parasites in slaughter houses in Canton. Part II. Nematodes parasitic in the alimentary tract of buffaloes, with a description of two new species.” 16 (2), 157-165.
- c. WU, K., 1937.—“Phyllodistomes from Shanghai area (Trematoda : Gorgoderidae).” 16 (2), 209-213.
- d. LI, L. Y., 1937.—“On the excretory system of *Glypthelminis staffordi* Tubangui, 1928.” 16 (2), 303-305.
- e. CHU, T. C., 1937.—“On the occurrence of *Strongyloides ratti* Sandground in Chinese rats (Nematoda : Strongylidae).” 16 (3), 501-502.
- f. HU, S. M. K., 1937.—“Notes on the filarial infection of *Culex pipiens* var. *pallens* Coq. in relation to the microfilarial density of the blood.” 16 (3), 409-413.

(203a) Chen describes 3 new species of *Capillaria* from *Suncus coeruleus* in Canton, China. *C. suni* from the urinary bladder can be distinguished by the uneven thickening of the shell of the eggs. *C. minuta*, a very small form from the small intestine and stomach, has a small bursa, supported by papillae of a very characteristic form. A female of a third species is described but specific determination is withheld until the male can be described. P.A.C.

(203b) Six species of nematodes were found in buffaloes in South China, viz., *Trichuris ovis*, *Haemonchus* sp., *Oesophagostomum columbianum*, *O. radiatum*; a new species, named *Cooperia laterotuniformis* n. sp., is differentiated from *C. punctata* on differences in size of the rays from those given by Ransom; a new filariid worm *Setaria leichungwingi* n. sp. is distinguished from the 20 known forms in this genus by the number and arrangement of the caudal papillae in the male.

R.T.L.

(203c) Wu describes *Phyllodistomum sinense* n. sp. from the urinary bladder of the cat fish *Odontobutis obscura* and mentions two other forms which have not been specifically determined.

R.T.L.

(203d) In *Glypthelminis staffordi* there are in all 36 flame cells. These are arranged in groups of three, mostly near the median line of the body.

R.T.L.

(203f) Of 89 laboratory reared *Culex pipiens* var. *pallens* experimentally infected by feeding on a heavily filariated case 85.5% were found to have become infected. Of 71 specimens fed on a lightly filariated case 40.8% were afterwards found infected. In the former batch of mosquitoes the average number of larvae was 12.1. In the latter the average number of larvae was 2.4 per mosquito. R.T.L.

204—Medical Journal of Australia.

a. PENFOLD, W. J., PENFOLD, H. B. & PHILLIPS, M., 1937.—“The criteria of life and viability of mature *Taenia saginata* ova.” 24th Year, 2 (1), 1-5.

(204a) The eggs of *Taenia saginata* survive at 2° to 5°C. in physiological saline for 13½ but not for 16½ weeks. On dry pastures some eggs remain viable for at least 14½ weeks. Some eggs kept dry under laboratory conditions remained viable for 2 days, but did not survive in the presence of a small amount of common salt. The maximum longevity of the eggs on pastures under average conditions in the State of Victoria, Australia, is probably not many months but has not been actually determined. R.T.L.

205—Medical Parasitology and Parasitic Diseases.

a. KAMALOV, N. C., 1937.—“The organization of the campaign against helminthic parasites in Georgia.” 6 (2), 266-268. [In Russian.]

(205a) In the Georgian Republic the greatest scourge next to malaria is ancylostomiasis, which affects about half a million persons. Kamalov describes the organization created to cope with this problem. Helminthological departments have been attached to existing institutes and dispensaries, and treatment, prophylaxis and propaganda proceed from these departments under the general control of the Tropical Diseases Institute at Tbilisi. Each department is seeking to establish and maintain in its area a “model village” which will show what can be done by adequate treatment and control.

In addition, “prophylactoria” at four tea estates and two citrus farms act largely as quarantine stations for the treatment on arrival of immigrant workers. B.G.P.

206—Medicina de Hoy.

a. BASNUEVO, J. & ANIDO, V., 1937.—“Manera de conservar huevos de helmintos.” 2 (5), p. 300.
 b. KOURÍ, P., 1937.—“Algunas consideraciones sobre el parasitismo intestinal por *Oxiurus*.” 2 (5), 310-313.

(206a) Basnuevo & Anido preserve faeces containing helminth eggs by adding to 100 g. of faeces 25 c.c. of the mixture: formalin 15, glycerine 20, water 100. If the eggs are scarce, the faeces are first diluted, sieved and centrifuged, an equal quantity of the mixture being then added to the sediment. B.G.P.

(206b) This is the text of a radio talk given on oxyuriasis by Kouri in non-technical language. B.G.P.

207—Memorias do Instituto Oswaldo Cruz.

- a. LENT, H. & FREITAS, J. F. TEIXEIRA DE, 1937.—“ Contribuição ao estudo do genero *Dirofilaria* Railliet & Henry, 1911.” 32 (1), 37-54.
- b. FREITAS, J. F. TEIXEIRA DE & LENT, H., 1937.—“ Sobre um novo trematodeo parasito de *Iguana tuberculata* (Laur.).” 32 (1), 55-58.
- c. TRAVASSOS, L., 1937.—“ *Eucyathostomum dentatum* Molin, 1861 (Nematoda: Strongyloidea).” 32 (1), 95-100.
- d. PROENÇA, M. C., 1937.—“ Redecrição de *Ascaridia serrata* (Schneider, 1866) Railliet & Henry 1914 (Nematoda: Ascaroidea).” 32 (1), 101-103.
- e. FREITAS, J. F. TEIXEIRA DE, LENT, H. & ALMEIDA, J. LINS DE, 1937.—“ Pequena contribuição ao estudo da fauna helminthologica da Argentina (Nematoda).” 32 (2), 195-209.
- f. FREITAS, J. F. TEIXEIRA DE, 1937.—“ Sobre algumas especies do genero *Travassosthongylus* Orloff, 1933 (Nematoda: Trichostrongylidae).” 32 (2), 217-220.
- g. LENT H. & FREITAS, J. F. TEIXEIRA DE, 1937.—“ Nova *Physaloptera* parasita de marsupial (Nematoda: Spiruroidea).” 32 (2), 221-223.
- h. TRAVASSOS, L., 1937.—“ Genero *Monodontus* Molin, 1861 (Nematoda: Strongyloidea).” 32 (2), 225-229.
- i. FREITAS, J. F. TEIXEIRA DE & LENT, H., 1937.—“ Notas sobre *Gongyloneminae* Hall, 1916 (Nematoda: Spiruroidea).” 32 (2), 299-304.
- j. LENT, H. & FREITAS, J. F. TEIXEIRA DE, 1937.—“ Alguns helminthos da collecção de Pedro Severiano de Magalhães.” 32 (2), 305-309.

(207a) The 23 species which have been placed by various authors in the genus *Dirofilaria* are reduced by Lent & Freitas to 20. These are listed with brief notes on habitat, geographical distribution and synonymy. R.T.L.

(207b) A new genus *Pulchrosomoides* in the subfamily Omphalometrinae is set up for *P. elegans* n. sp. from the stomach of *Iguana tuberculata*. It is near to *Pulchrosoma* Travassos, 1916, but the testes are not racemose nor the ovary lobed. R.T.L.

(207c) The species *Eucyathostomum dentatum* Molin which has been confused by authors with *Oesophagostomum dentatum* is redescribed and placed in the Trichoneminae. R.T.L.

(207e) The following nematodes are reported and briefly described: from *Galea leucoblephara* (i) *Ackertia burgosi*, (ii) *Viannella argentina* n. sp.; from *Caviella australis* (i) *Ackertia burgosi*, (ii) *Aspiculuris cululzi* n. sp., (iii) *Helminthoxys caudatus* n. g., n. sp. and from *Holochilus balnearium* (i) *Longistriata argentina* n. sp., (ii) *L. fortuita* n. sp., (iii) *Heligmonoides mazzai* n. sp., (iv) *Stilestrongylus stilesi* n. g., n. sp. The new genus *Helminthoxys* is near to *Heligmonoides* Baylis, 1928 and *Stilestrongylus* to *Heligmonina* Baylis, 1928 and *Heligmonoides* Baylis, 1928. R.T.L.

(207f) Brief descriptions are given by Freitas of *Travassosthongylus* *quatuor* n. sp., *T. quintus* n. sp. and *T. sextus* n. sp. all from the intestine of *Metachirus nudicaudatus personatus* in Brazil. R.T.L.

(207g) *Physaloptera mirandai* n. sp. is described from the oesophagus of *Metachirus nudicaudatus personatus*. R.T.L.

(207h) The genus *Monodontus* is redefined as containing *M. semicircularis* (type), *M. giraffae*, *M. rarus*, and two new species *M. agutiari* n. sp. from the intestine of *Dasyprocta agouti* and *M. nefastus* n. sp. from the intestine of *Tapirus americanus*. R.T.L.

(207i) A new species *Gongylonema baylisi* n. sp. is described from the oesophagus of *Tayassus tajacu* and *Gongylonemoides* n. g. has been erected for *Gongylonema marsupialis* from the oesophagus of *Didelphis aurita* and *Metachirops opossum* in Brazil. R.T.L.

(207j) A series of microscopical preparations made by Magalhães have been reported on, and of these one is recorded as a new species, *Capillaria magalhæsi* n. sp., from the intestine of the sea fish, *Micropogon undulatus*. R.T.L.

208—New Zealand Journal of Science and Technology.

a. TETLEY, J. H., 1937.—“The distribution of nematodes in the small intestine of the sheep.” 18 (11), 805-817.

(208a) The distribution of the individual species of nematodes throughout the small intestine of healthy sheep is described by Tetley with the aid of graphs showing the numbers found in relation to the distance in feet from the pylorus. The jejunum was the site in which the greatest number of parasites were found and there was typically a normal frequency distribution of species. It is concluded that the site of infection of species is determined by the rate of response of incoming larvae to stimuli contained in the intestinal contents. J.W.G.L.

209—New Zealand Medical Journal.

a. BARNETT, L., 1937.—“Hydatid disease: prevalence and prevention.” 36 (192), 105-117.

(209a) Barnett discusses the incidence of hydatid disease in man and domesticated animals with particular reference to New Zealand and Australia. The method of prevention put forward is the introduction of 2 compulsory legal measures: (i) Prohibition of the feeding to dogs with unsterilized offal and (ii) the insistence on regular administration of arecoline hydrobromide to all country dogs. J.W.G.L.

210—North American Veterinarian.

a. HOWARD, D. M., 1937.—“Worm treatment for puppies.” 18 (9), p. 50.

(210a) Howard reports the symptoms of hookworm in puppies 5 to 8 days old and their successful treatment with hexylresorcinol. J.W.G.L.

211—Okayama-Igakkai-Zasshi.

a. MIKI, Y., 1937.—“Notes on the embryonic development of *Dicrocoelium dendriticum* and *Eurytrema pancreaticum*.” 49 (7), 1425-1476. [In Japanese: English summary, pp. 1425-1427.]

212—Parasitology.

- a. BYRD, E. E., 1937.—“The trematode parasites from a red-bellied watersnake, *Farancia abacura*,” **29** (3), 359-364.
- b. PODDER, T. N., 1937.—“A new species of Acanthocephala *Neoechinorhynchus topseyi* n. sp., from a Calcutta fish, *Polynemus heptadactylus* (Cuv. & Val.),” **29** (3), 365-369.
- c. VAN CLEAVE, H. J., 1937.—“Acanthocephala from China. II. Two new species of the genus *Acanthocephalus* from Amphibia,” **29** (3), 395-398.
- d. GREGSON, J. D., 1937.—“Cysticercosis in deer,” **29** (3), p. 409.
- e. BAYLIS, H. A. 1937.—“A note on *Capillaria aërophila* (Nematoda).” **29** (3), 410-412.

(212a) Byrd describes *Cercorchis auridistomi* n. sp. from the small intestine of the snake, and *Stomatrema guerleti* n. sp. from the oesophagus. A single specimen was found also of *Vitellotrema fusipora* Guerlet. E.M.S.

(212b) Podder gives a morphological description of *Neoechinorhynchus topseyi* n. sp., recovered from the intestine of the “Topsey” or mango-fish, *Polynemus heptadactylus*, available in the Calcutta markets. Infection with the Acanthocephalid was marked during May-July. In a table the new parasite is compared with closely related species from which it differs mainly in the size of the body in both males and females, the size of the hooks and of the proboscis, and the number of giant subcuticular nuclei. J.N.O.

(212c) Van Cleave gives descriptions of two Acanthocephalids found in Chinese amphibians by Faust in field studies during 1920 to 1925. *Acanthocephalus sinensis* n. sp. was recovered from the intestine of *Rana nigromaculata* and *Bufo formosus* in the Hunan, Chekiang and Hupeh provinces of China. It is distinguished from other species of the same genus in the Orient in having the embryos in gravid females distinctly smaller than those of other representatives of the genus. A single immature female of *Acanthocephalus elongatus* n. sp. was taken, in association with *A. sinensis*, from the intestine of *Bufo formosus* at Changsha, Hunan province. The very slender, much elongated proboscis clearly distinguishes this from all other species of the same genus. The author observes that water snakes, particularly *Natrix tigrina*, which feed upon amphibians very commonly carry *A. sinensis* in the intestine. J.N.O.

(212d) Gregson records a very heavy infestation with *Cysticercus tenuicollis* in the liver, mesenteries and lungs of a two year old mule deer (*Odocoileus hemionus*). This animal had been experimentally subjected to infestation with the moose and cattle tick *Dermacentor albipictus*. J.W.G.L.

(212e) From the examination of preserved material from the lungs of a silver fox, Baylis confirms the finding of Creplin (1849) to the effect that a spicule is present in the genotype of *Eucoleus* (*Trichosomum aërophilum* Crepl., in Ersch & Gruber, 1839) and therefore regards *Eucoleus* as a synonym of *Capillaria*. The author also confirms Riley & Christenson (1931) in describing the eggs as having “thick, netted shells” as opposed to the description of Dujardin (1845) of “granular” shells. J.W.G.L.

213—Peking Natural History Bulletin.

- a. WU, K., 1937.—“Two encysted trematodes of freshwater shrimps around Shanghai region.” **11** (3), 199-204.
- b. RAHM, G., 1937.—“Oekologische und biologische Bemerkungen zur anabiotischen Fauna Chinas (Nematoden und Trichoden).” **11** (3), 233-248.
- c. WU, C. F., 1937.—“Notes on the preparation of sections of the uteri of *Ascaris megalcephala* for the demonstration of the maturation and fertilization phenomena in animals.” **11** (3), 249-251.
- d. HOEPLI, R., 1937.—“Modern trends in parasitology with special reference to recent work in China.” **11** (3), 257-280.

(213a) In the muscles of the freshwater shrimps *Palaemon asperulus* and *P. nipponensis* in the neighbourhood of Shanghai, Wu has found two species of metacercariae, viz., *Coitocaecum* sp. and *Microphallus* sp. The adults of the latter are unknown ; those of the former occur in freshwater fishes.

R.T.L.

(213b) Rahm gives an account of the nematodes obtained from mosses collected from 22 districts in China. After a general discussion of the biological and ecological relationships of the organisms and their environment, he sets out the names of the various sites from which the mosses were obtained and then gives a list of 34 species of nematodes identified with particulars of their abundance. Some are new and are described elsewhere [see No. 246a below].

T.G.

(213d) Hoepli gives a valuable résumé of modern work and tendencies in parasitology. The paper has a useful bibliography.

R.T.L.

214—Phytopathology.

- a. LINFORD, M. B., 1937.—“The feeding of the root-knot nematode in root tissue and nutrient solution.” **27** (8), 824-835.
- b. STEINER, G., 1937.—“Observations on the yam nematode (*Rotylenchus bradys* (Steiner & LeHew, 1933)) Filipjev, 1936.” **27** (8), 865-867.

(214a) Linford describes observations on the method of feeding of *Heterodera marionii* in nutrient solutions and in living gall tissues. He shows that the stylet is used for penetrating cells ; that the head is swung through wide angles to enable food to be obtained intermittently from a number of cells, thus avoiding cell destruction ; and that saliva is extruded from the protruded stylet. The significance of these observations is discussed in relation to other stylet-bearing species and the biology and pathogenicity of this species.

©

M.J.T.

(214b) Steiner gives a brief account of disease symptoms present in yam tubers (*Dioscorea alata* L.) attacked by the yam nematode, *Rotylenchus bradys*. The note is illustrated with good photographs.

T.G.

215—Plant Disease Reporter.

- a. CROSSMAN, L. & CHRISTIE, J. R., 1937.—“Lists of plants attacked by miscellaneous plant-infesting nematodes.” **21** (9), 144-167.

(215a) Crossman & Christie have compiled host-lists of plants attacked by all the parasitic nematodes except *Anguillulina dipsaci*, *Heterodera marioni*, *H. schachtii* and *Aphelenchoides fragariae*.

T.G.

216—Plant Disease Reporter. Supplement.

a. BARSS, H. P., WINGARD, S. A., BUHRER, E. M., STEINER, G. & TYLER, J., 1937.—“Proceedings of the Root-Knot Nematode Conference held at Nashville, Tennessee, Feb. 2 and 3, 1937.” No. 102, 97-122.

(216a) In a general survey of problems relative to the root knot nematode, *Heterodera marioni*, the following points are discussed. The life cycle, host range, artificial culture methods, parasites and responses to environment of the nematode; methods of determining and measuring infestations; means of dissemination; relation to temperatures in Florida; control by means of chemicals, crop rotations with immune and resistant plants; elimination of infestation within the plant; and the relation of this to other plant parasites. Lines for future investigations are suggested and methods of increasing the effectiveness of attack on the nematode problem are discussed. M.J.T.

217—Proceedings of the Helminthological Society of Washington.

a. LINFORD, M. B., 1937.—“The feeding of some hollow-stylet nematodes.” 4 (2), 41-46.

b. LINFORD, M. B., 1937.—“Notes on the feeding of *Ditylenchus dipsaci* (Nematoda: Tylenchidae).” 4 (2), 46-47.

c. COBB, G. S., 1937.—“The nematode *Ditylenchus dipsaci* (Tylenchidae) in tulip leaves.” 4 (2), p. 48.

d. STEINER, G., 1937.—“Opuscula miscellanea nematologica, VI.” 4 (2), 48-52.

e. SHORB, D. A., 1937.—“A method of separating infective larvae of *Haemonchus contortus* (Trichostrongylidae) from free-living nematodes.” 4 (2), p. 52.

f. McBETH, C. W., 1937.—“Observations on the length of dormancy of certain plant-infesting nematodes.” 4 (2), p. 53.

g. McBETH, C. W., 1937.—“Experiments to determine the nematocidal qualities of beta naphthol, colloidal arsenate of lead and colloidal sulphur.” 4 (2), 53-54.

h. CHITWOOD, B. G., 1937.—“A new genus and ten new species of marine nematodes from North Carolina.” 4 (2), 54-59.

i. JACOBS, L. & CHITWOOD, B. G., 1937.—“A preliminary note on ‘rhabditin’ sphaero-crystalloids.” 4 (2), p. 60.

j. MOORTHY, V. N., 1937.—“A new species of fresh-water nematode, *Actinolaimus chitwoodi* (Dorylaimidae).” 4 (2), p. 61.

k. SPINDLER, L. A., 1937.—“Infestation of suckling pigs with helminth parasites under conditions of constant exposure to infection.” 4 (2), 62-63.

l. FOSTER, A. O. & CHITWOOD, B. G., 1937.—“A new nematode, *Habronema clarki*, n. sp. (Spiruridae), from *Hydrochoerus isthmius* Goldman.” 4 (2), 64-65.

m. ANDREWS, J. S., 1937.—“A note on the location of the nematode *Cooperia curticei* (Trichostrongylidae) in sheep.” 4 (2), p. 65.

n. DIKMANS, G., 1937.—“Two new species of the nematode genus *Nematodirus* (Trichostrongylidae) from rabbits.” 4 (2), 65-67.

o. MUELLER, J. F., 1937.—“The hosts of *Diphyllobothrium mansonioides* (Cestoda: Diphyllobothriidae).” 4 (2), 68-69.

- p. POTTER, C. C., 1937.—“A new cestode from a shark (*Hypoprion brevirostris* Poey).” 4 (2), 70-72.
- q. OLSEN, O. W., 1937.—“A new species of cestode, *Dendrouterina lintoni* (Dilepidiidae), from the little green heron (*Butorides virescens* (Linn.)).” 4 (2), 72-75.
- r. KRULL, W. H., 1937.—“Observations on the life history of *Eustomos chelydrae* MacCallum, 1921 (Trematoda: Plagiorchiidae).” 4 (2), 75-78.
- s. BYRD, E. E., 1937.—“A new host record for *Brachycoelium hospitale* Stafford (Trematoda: Lecithodendriidae).” 4 (2), 78-79.
- t. BYRD, E. E. & DENTON, J. F., 1937.—“*Pneumatophilus leidyi*, n. sp. (Trematoda: Plagiorchiidae), a new lung fluke from the watersnake.” 4 (2), 79-81.

(217a) Linford has studied the method of feeding in the case of certain nematodes provided with a mouth spear. They were examined in dishes of stiff agar (3% strength) by means of a water immersion objective. Certain dorylaims and *Aphelenchoides tenuicaudatus* were found to be predacious in habit, thrusting the spear through the cuticle of the prey, pouring into it a secretion from the dorsal oesophageal gland and then sucking out the contents. Evidence is presented that the secretion poured into the body paralyses the prey and is digestive in action. *Ditylenchus intermedius* feeds on fungal hyphae which it punctures with its spear. A brief note is added on the feeding of *Heterodera marioni* which is said to puncture giant cells lying around its head.

T.G.

(217b) Linford presents observations on the feeding of the stem eelworm (*Ditylenchus dipsaci*). Making use of rather thick sections of parasitized plant tissue mounted between thin layers of stiff agar, he was able to observe in a few cases the attempted puncturing of mesophyll cell walls by the mouth spear. He also found that *D. dipsaci* may feed upon fungal hyphae. T.G.

(217c) Cobb has found *Ditylenchus dipsaci* in 3 tulip leaves of the variety “Le Notre” from a plot in which eelworm infested narcissi were growing at Babylon, Long Island, N.Y. Of 16 leaves examined only these 3 contained the parasite and although no special symptoms of disease were observed, adults, larvae and eggs were found.

T.G.

(217d) Steiner re-establishes *Aphelenchoides coffeae* (Zimmermann, 1898) as a valid species and indicates points of difference from *A. parietinus* with which it had been synonymized. He presents observations on the occurrence of *Aphelenchoides fragariae* in dwarfed flower buds of a paeony and gives a description of *Eucephalobus teres* from brownish pustules on the surface of a narcissus bulb.

T.G.

(217e) The addition of $\frac{1}{3}$ c.c. of concentrated hydrochloric acid to 10 c.c. of water containing a mixture of free-living nematodes and infective larvae of *Haemonchus contortus* caused the former to be killed almost instantly while the latter remained alive for at least 24 hours. This greatly facilitated the recognition of the infective larvae. The method can also be applied to infective larvae of *Nippostrongylus muris*, *Cooperia curticei* and some of the horse strongyles.

J.W.G.L.

(217f) McBeth makes additional observations, following those of Corder (1933, J. Parasitol., 20 (2), p. 104), on the survival of two species of nematodes

in a dormant condition. No live specimens of *Tylenchus balsamophilus* in *Balsamorhiza sagittata* were found after the material had been kept for 11 years. *Ditylenchus dipsaci* in teasel leaves and garlic did not survive 8 years, and in long-leaf plantain it did not survive 7 years. In *Hypochaeris* no live specimens of this nematode were found after 5 years, but after 7 years 3 worms were found in one sample, 2 of which were alive. In teasel 100% of *D. dipsaci* were alive after 7 years, and 50% after 9 years, while in oats 100% were alive after both 6 and 8 years. M.T.F.

(217g) McBeth finds that beta naphthol gives the most effective control of the beet strain of *Heterodera schachtii*, while colloidal sulphur is most ineffective. The cost in all cases is many times the value of the land. E.M.S.

(217h) Chitwood collected marine nematodes at Beaufort, N.C., and describes the following 10 new forms: *Oncholaimoides rugosum* n. g., n. sp., *O. striatum* n. sp., *Viscosa paralinostwi* n. sp., *V. brachylaimoides* n. sp., *Microlaimus dentatus* n. sp., *M. dimorphus* n. sp., *Oxystomina alpha* n. sp., *Laimella quadrisetosa* n. sp., *L. hexasetosa* n. sp. and *Comesoma minimum* n. sp. T.G.

(217i) Jacobs & Chitwood have investigated the sphaero-crystalloids or bi-refringents which occur in the intestinal cells of species of *Rhabditis*. They come to the conclusion that they are of carbo-hydrate character since they are apparently digested or disintegrated by the action of saliva. T.G.

(217j) Moorthy obtained a single female specimen of *Actinolaimus chitwoodi* n. sp., from a fresh water pond in S. India. He gives a brief account of its morphology. T.G.

(217k) Spindler finds that pigs reared on land infected with helminth eggs became infected with ascarids, threadworms, kidney worms and nodular worms within three weeks of birth. Spirurid stomach worms were found once in this series—in an animal killed at 70 days old. The pigs from a poor sow began to forage early and tended to become infected earlier than those which were well fed by the mother. P.A.C.

(217l) A fourth species is added to the genus *Habronema*. Foster & Chitwood describe *H. clarki* n. sp. from the capybara, *Hydrochoerus isthmus*, of Panama. It is most nearly related to *H. microstoma* from which it differs by having a vaginal thickening some distance from, instead of close to, the vulvar orifice. R.T.L.

(217m) From the examination of 10-foot lengths of the small intestine of five experimentally infected lambs, Andrews found the majority of *Cooperia curticei* occurring within the first 20 feet, and practically all within the first 30 feet, of the small intestine. J.W.G.L.

(217n) Dikmans describes two new species of *Nematodirus* from rabbits and gives a key to the species of this genus in rodents. *N. neomexicanus* n. sp., from the small intestine of *Lepus californicus texianus* and *Sylvilagus nuttallii pinetis*, has in the male rounded bursal lobes; the medio- and posterolateral rays are parallel and the spicules terminate in straight sharp points. *N. arizonensis* n. sp., from the small intestine of *Lepus alleni*, has divergent medio- and posterolateral rays and the lobes of the bursa are triangular. J.W.G.L.

(217o) 90% of the *Natrix* in the vicinity of the Silver Springs and Sarasota, Fla., are infected with spargana. When fed to cats two different types of tapeworms were recovered, viz., *Diphyllobothrium mansonioides* and *D. mansoni* (*erinacei*). The latter, however, does not thrive in the cat and while it shows the general characters of the species, differs from the orient type in certain important features and in its failure to infect frogs. In the Syracuse region water snakes are infected with spargana which proved from feeding experiments to be *D. mansonioides*. R.T.L.

(217p) A new species *Platybothrium hypoprioni* has been found in *Hypoprion brevirostris* by Potter. It differs from the two known species of this genus in lacking a connecting bar between the hooks of a pair. There is a larger ovary and a more anterior genital pore. R.T.L.

(217q) Previously diagnosed by Linton as *Dilepis unilateralis* this cestode is now named by Olsen *Dendrouterina lintoni* n. sp. R.T.L.

(217r) The cercaria and metacercaria of *Eustomos chelydrae* are described. With cercariae from a naturally infected *Helisoma antrosa* heavy infections were obtained in laboratory raised *Pseudosuccinea columella*, *Limnaea traskii*, *Helisoma trivolvis* and *H. antrosa*. Adults were raised by feeding infected snails to a young laboratory-bred snapping turtle, *Chelydra serpentina*. R.T.L.

(217s) *Brachycoelium hospitale* has been found in the duodenum of the grass snake *Ophisaurus ventralis*. R.T.L.

(217t) *Pneumatophilus leidyi* n. sp. is nearly related to *P. variabilis* but differs in the larger body, suckers, pharynx, cirrus sac and ova, length of caeca, shape and size of ovary, and smaller testes. The metraterm is well developed and the acetabulum and the genital pore occupy different positions. R.T.L.

218—Proceedings of the Royal Society of Medicine.

a. TAYLOR, E. L., 1937.—“An example of the value of morphology in medico-biological investigation.” 30 (3), 238-244.

(218a) Taylor gives a historical resumé of the life history of trematodes and shows how the links between the various larval stages were forged by successive workers. [See also Helm. Abs., Vol. VI., No. 65a.] R.T.L.

219—Proceedings of the Society for Experimental Biology and Medicine.

a. PIERCE, jr., G. N. & McNAUGHT, J. B., 1937.—“Effects of alcohol on *Trichinella spiralis*.” 36 (5), 579-581.
 b. CATRON, L., 1937.—“Non-transmissibility *in utero* of trichinosis in the rat.” 36 (5), 721-723.

(219a) Pierce & McNaught have investigated the possibility of the use of alcohol in affording protection against infection when ingesting trichinous meat. *In vitro* experiments on the digestion of small quantities of infected

meat in artificial gastric juice, to which varying quantities of absolute ethyl alcohol had been added, show that concentrations of alcohol as low as 9% interfere with the excystment of *Trichinella* larvae; this may be due to the destruction of the proteolytic activity of the enzyme by the alcohol. Experiments on predigested larvae show that a concentration of 25% alcohol has little direct action on the larvae, which can remain alive in this percentage for more than 6 hours; and this is a percentage which cannot be maintained in the human stomach for such a long period.

V.D.S.

(219b) By infecting adult female white rats with *Trichinella* at various stages during pregnancy, Catron has determined that intra-uterine infection of foetuses does not occur in the rat. The migrating larvae in the mother rat cannot cross the placental barrier into the foetal circulation, nor do they migrate from the peritoneal cavity of the mother rat into the embryo or amniotic sac. Also, since the young rats when born were caged with and fed by the infected mothers, it is clear that infection cannot be transmitted by the milk or faeces.

V.D.S.

220—Proceedings of the Zoological Society of London.

a. WOODLAND, W. N. F., 1937.—“Some cestodes from Sierra Leone. I. On *Wenyonia longicauda* sp. n., and *Proteocephalus bivittellatus*, sp. n.” Year 1936, Part 4, pp. 931-937.

221—Proceedings of the Zoological Society of London. Series B. Systematic and Morphological.

a. REES, G., 1937.—“The anatomy and encystment of *Cercaria purpurascens* Labour, 1911.” 107 (1), 65-73.
 b. WALKER, T., 1937.—“On the anatomy of *Gorgoderina vitelliloba* (Olss.), a trematode from the urinary bladder of *Rana temporaria*.” 107 (1), 75-84.

(221b) With a detailed and illustrated description of *Gorgoderina vitelliloba*, Walker gives a key to the 12 known species of *Gorgoderina* and a bibliography.

R.T.L.

222—Public Health Reports. Washington.

a. HALL, M. C., 1937.—“Studies on trichinosis. IV. The role of the garbage-fed hog in the production of human trichinosis.” 52 (27), 873-886.

(222a) In this paper Hall estimates the relative importance of the different pig-rearing systems in the U.S.A. in the production of human trichinosis. Garbage-fed swine show an incidence of trichinæ between three and five times as great as grain-fed swine.

The chief source of hog trichinosis appears to be the feeding of trichinous pork scraps and trimmings to garbage-fed animals, and hence these latter are the chief source of danger to the human population. Control measures against trichinosis in man should therefore be directed against the feeding of uncooked garbage to swine, a practice which is, in addition, aesthetically objectionable and often economically unsound. Suggested control measures are therefore the proper processing of pork products customarily eaten without

cooking ; the thorough cooking of pork and pork products before consumption ; the use of a rational swine sanitation system (the McLean system) to obviate the eating of pork scraps, swine carcasses, or rats by swine on farms ; if garbage feeding is to be maintained, the thorough cooking of all garbage fed to swine ; and the use of concrete rat-proofing and the control of rats by trapping and poisoning to prevent the eating of rats by swine. It is suggested that the institution of these measures lies in the hands of the packing industry.

V.D.S.

223—Puerto Rico Journal of Public Health and Tropical Medicine.

a. BACHMAN, G. W., MOLINA, R. R., HOFFMANN, W. A. & GONZÁLEZ, J. O., 1937.—“A study of parasite control in Puerto Rico over a period of five and a half years.” **12** (4), 369-388. [Also in Spanish pp. 389-404.]

(223a) Bachman & collaborators report on an epidemiological survey of parasites, and a campaign to control them, in an area to the north of Puerto Rico. The incidence of the principal parasites at the beginning of the experiment was : Trichuris, 81% ; hookworm, 77% ; Ascaris, 61%. Treatment followed the survey and was repeated after 9 months. Educational and sanitary campaigns, including house-to-house visits by social workers, lasted for 18 months and were then suspended for two years. Results showed a return to high levels of infection with Ascaris and hookworm in all age-groups.

B.G.P.

224—Reunión (Novena) de la Sociedad Argentina de Patología Regional.

a. NIÑO, F. L., 1937.—“Triquinosis experimental en el ‘Peludo’.” **2**, 630-639.
 b. NIÑO, F. L., 1937.—“Oxyuridae parásito del intestino de *Chaetophractus villosus*.” **2**, 640-645.
 c. FERNANDEZ, F. & CASTILLA, D., 1937.—“Parasitismo intestinal en niños sanos.” **2**, 646-654.
 d. RODRIGUEZ MOLINA, R. & PONS, J. A., 1937.—“Estudios hematológicos sobre la esquistosomiasis de Manson en Puerto Rico.” **2**, 726-752.
 e. ORFILA, J. A., 1937.—“Cisticercosis radiográficamente determinada.” **2**, 907-916.
 f. VOGELSANG, E. G., 1937.—“*Longistriata niñoi* n. sp. Nematode parásito del *Tolypeutes mataco* (Edentata).” **2**, 955-958.
 g. NOTTI, P., 1937.—“La hidatidosis en Mendoza.” **2**, 1033-1107.
 h. PAVE, S. & ROSSI, F., 1937.—“*Eustrongylus visceralis* ; síntomas y lesiones en el perro.” **2**, 1295-1304.
 i. BERNARDI, B. DE, 1937.—“Contribución al estudio de la parasitosis intestinal en la población infantil y adulta de la ciudad de Paraná (E. R.).” **2**, 1305-1328.
 j. CHAGAS, E., 1937.—“Estudos sobre a anemia helminthica.” **2**, 1338-1346.

(224a) Niño describes the experimental infection with *Trichinella* of the armadillo, *Chaetophractus villosus*, which is eaten as a delicacy in the Argentine. As this armadillo is carnivorous, and something of a scavenger, it should be regarded with suspicion in the control of *Trichinella*.

B.G.P.

(224b) In examining *Chaetophractus villosus* for *Trichinella* [see previous abstract], Niño found transverse sections and also embryonated eggs of an unknown oxyurid nematode. B.G.P.

(224c) The present study of intestinal parasitism in 48 healthy children from Granada completes earlier studies on 100 adults and 100 children suffering with diarrhoea. With the exception of *Hymenolepis nana*, parasites were more frequently found in the diarrhoea cases. B.G.P.

(224d) Rodriguez Molina & Pons have based an investigation of anaemia in Schistosomiasis mansoni on 20 cases from Puerto Rico. One case was in the early toxæmic stage, 8 were intestinal, and 11 in the terminal stage, showing cirrhosis or splenomegaly. Data on the results of treatment by Fouadin, inorganic iron, liver extract and also by splenectomy are given. There are also copious haematological data. The general conclusion is that prevention is better than cure. B.G.P.

(224h) Pave & Rossi present a case-report of *Diocophyllum renale* in a dog. Ten specimens were recovered, from both kidneys, liver, and body cavity. Circumstantial evidence suggests *Tetragonopterus* as a possible intermediary. B.G.P.

(224i) Chagas has observed haematologically two cases of mixed infection with malaria and hookworm in which the malaria was first dispersed, and two cases of hookworm which were subsequently artificially infected with *Plasmodium vivax*. A further case of hookworm anaemia was treated by bleeding. Results show that malarial and hookworm anaemias are mutually compensatory. Thus, hookworm anaemia may be due to subnormal destruction of peripheral red-cells. In this case, therapeutic iron would act by stimulating the normal destructive organs (spleen, e.g.), while malaria or slight bleeding would operate in the same direction. B.G.P.

225—Revista de Agricultura.

a. PÉREZ VIGUERAS, I., 1937.—“Influencia del parasitismo en la prosperidad de la industria pecuaria nacional.” 2 (1) [Reprint 16 pp.]

(225a) Pérez Vigueras briefly surveys some of the more important parasites of domestic birds and animals in Cuba. B.G.P.

226—Revista de Medicina Tropical y Parasitología, Bacteriología, Clínica y Laboratorio.

a. REAUD, A., 1937.—“Porcentaje y distribución geográfica del parasitismo intestinal en Cuba. Provincia: Oriente. Municipio: Mayari. Barrio: Preston.” 3 (3), 215-217.

227—Rivista di Parassitologia.

a. GIOVANNOLA, A., 1937.—“Schistosomiasi intestinale da *S. mansoni* nel Harar e sua transmissione con il *Planorbis boissyi*.” 1 (2), 157-162.

(227a) Giovannola records two cases of *Schistosoma mansoni* from Harar, Abyssinia. Local specimens of *Planorbis boissyi* were experimentally infected and produced cercariae in 30 days. R.T.L.

228—Schweizerische Medizinische Wochenschrift.

a. FRAUCHIGER, E., 1937.—“Ischias bei Bothriocephaluserkrankung.” 67 (31), p. 717.

(228a) A brief case-report is given by Frauchiger of a patient suffering from left-sided ischias. The condition disappeared after the removal of a *Diphyllobothrium*.
B.G.P.

229—Science.

a. LI, J. C., 1937.—“A six-chromosome ascaris in Chinese horses.” 86 (2222), 101-102.
b. STUNKARD, H. W., 1937.—“The life cycle of *Moniezia expansa*.” 86 (2231), p. 312.

(229b) Stunkard gives a preliminary note on the discovery of the life history of *Moniezia expansa*. Various free-living mites were found to feed on anoplocephalid eggs. In the case of *Galumna* sp. fed with eggs of *M. expansa* the stages of development, from the onchosphere to the infective cysticeroid, were recovered from the body cavity of the mite. J.W.G.L.

230—Scottish Journal of Agriculture.

a. ROBERTSON, D., 1937.—“Observations on the potato eelworm (*Heterodera schachtii*).” 20 (3), 264-272.

(230a) Robertson describes the occurrence of *Heterodera schachtii* on potatoes grown in duplicated plots of clay, peat and gravel soil which had never grown potatoes previous to 1930 and to which the possibility of accidental transmission of cysts from an outside source during the 7 years of continuous potato cultivation appears remote. Yields, morphology of cysts, cyst counts and pH values are given. It is suggested that the infection arose from cysts produced on grasses and other plants present in the soil before potato cultivation was begun. Yields suggest that some degree of varietal resistance may be shown by Eclipse and Kerr's Pink. M.J.T.

231—Sitzungsberichte der Gesellschaft Naturforschender Freunde zu Berlin.

a. WETZEL, R. & ENIGK, K., 1937.—“Ein Beitrag zur Kenntnis der Parasitenfauna des deutschen Hochwildes.” 1936 (4/7), 162-164.

(231a) Wetzel & Enigk record a number of helminths, mainly from faeces examinations of the larger wild mammals of Germany, including *Fasciola hepatica* and a species of *Moniezia* in both elk and bison, *Dictyocaulus viviparus* and *Muellerius capillaris* in bison, and *Trichuris globulosa* in elk.

B.G.P.

232—Taiwan Igakkai Zasshi.

a. TANAKA, S., 1937.—“Investigations and clinical observations on Microfilaria among Formosan Chinese in Boko Island.” 36 (8), 1815-1824. [In Japanese: English summary p. 1825.]

(232a) Clinical signs of filariasis were observed in 43.2% of 229 male Formosan and resident Chinese inhabitants of the Island of Boko. The principal signs were chylocele, inflammation of the testis and epididymis, distension of the spermatic cord and varicose groin glands. In 16.3% *Microfilaria bancrofti* was observed in the blood. Eosinophilia ranging from 17% to 2% was noted in 62% of the cases. R.T.L.

233—Technical Bulletin. United States Department of Agriculture.

a. CUVILLIER, E., 1937.—“The nematode, *Ornithostrongylus quadriradiatus*, a parasite of the domesticated pigeon.” No. 569, 36 pp.

(233a) Cuvillier discusses *Ornithostrongylus quadriradiatus*, a pathogenic nematode of the domestic pigeon. The four larval stages are described, together with the reactions of the free-living stages to external environmental conditions. Host-parasite relations are considered in detail. There is little evidence of an effective immunity response on the part of the host, though some individuals showed themselves very severely affected pathologically. Control is most easily effected on the free-living stages which are not resistant to drying or exposure to sunlight and heat. P.A.C.

234—Tidsskrift for Planteavl.

a. BOVIEN, P., 1937.—“Skadedyr af saerlig Interesse.” In: “Plantesyggdomme i Danmark 1936. Oversigt, samlet ved Statens plantepatologiske Forsøg. (Plant diseases and pests in Denmark 1936).” 42 (2), 232-243.

(234a) Bovien gives brief particulars of the incidence of eelworm diseases on the following crops in Denmark during 1936: *Anguillulina dipsaci* on clover and lucerne, *Heterodera schachtii* on oats, beet and potatoes. T.G.

235—Tierärztliche Rundschau.

a. TIEDGE, 1937.—“Fohlen mit Strongyloidesinvagination.” 43 (35), p. 587.
b. OPPERMANN, T., 1937.—“Praktische Winke für die Diagnose und Bekämpfung der wichtigsten Schafkrankheiten.” 43 (36), 595-596.

(235a) Tiedge gives a photograph of a case of *Strongyloides westeri* in a two month old thoroughbred foal in East Prussia, and includes a short note on the symptoms and autopsy. J.W.G.L.

(235b) Continuing his discussion of the treatment of haemonchosis in sheep [see Helm. Abs., Vol. VI, No. 140c], Oppermann here stresses the importance of making a post-mortem examination of a selected sick animal to confirm the diagnosis. For haemonchosis may be confused with metabolic disorders due to under- or over-feeding, and Oppermann describes the clinical pathology of such disorders. B.G.P.

236—Tijdschrift voor Diergeneeskunde.

a. TENHAEFF, C. & FERWERDA, S., 1937.—“De geschiedenis der echinococcose en haar bestrijding in Friesland in het tijdvak 1916-1937.” 64 (13) 678-681.

(236a) Prof. Snapper's observation of the frequency of echinococcosis in Friesian patients led to an investigation on the incidence of echinococcosis in dogs in Friesland by the authors in 1917 to 1918. The meat inspection regulations of 1919 relating to echinococcosis have led to a very marked decrease of the infection in all animals except the horse. Medical men interested in the problem state that human infection has also decreased.

H.M.

237—Transactions of the American Microscopical Society.

- a. OLSEN, O. W., 1937.—“A systematic study of the trematode subfamily Plagiorchiinae Pratt, 1902.” 56 (3), 311-339.
- b. SIMON, F., 1937.—“A new cestode, *Raillietina centrocerci*, from the sage grouse *Centrocercus urophasianus*.” 56 (3), 340-343.
- c. NOBLE, A. E. & PARK, J. T., 1937.—“*Helicometrina elongata* n. sp. from the gobiesocid fish *Caularchus meandricus*, with an emended diagnosis of the trematode genus *Helicometrina*.” 56 (3), 344-347.
- d. CHANDLER, A. C., 1937.—“A new trematode, *Hirudinella beebei*, from the stomach of a Bermuda fish, *Acanthocybium petus*.” 56 (3), 348-354.
- e. WARD, H. L., 1937.—“Acanthocephala from the burbot ‘eel’ (*Lota vulgaris*), with special reference to variations in the female of *Echinorhynchus coregoni*.” 56 (3), 355-363.

(237a) Olsen has followed Mehra, 1931 in his concept of the Plagiorchiinae, but adds 6 more genera to make a total of 14. These are *Alloglossidium* Simer, 1929, *Macroderoides* Pearse, 1924, *Eustomos* MacCallum, 1921, *Haplometrana* Lucker, 1931, *Megacustis* Bennett, 1935 and *Plagiorchoides* n. g. (for *Plagiorchis noblei* Park, 1936). Keys are given to the species within each genus, and a series of 5 plates shows small comparative drawings of 80 different species.

E.M.S.

(237b) Simon describes *Raillietina (Skrjabinia) centrocerci* n. sp., from the intestine of the sage grouse, *Centrocercus urophasianus*. The new species is readily separated from others in the sub-genus by the large number of testes, and large size of scolex. A key is given to all species of the sub-genus.

E.M.S.

(237e) The American burbot serves as a host for 4 species of Acanthocephala. Certain variations in one of these species, viz., *Echinorhynchus coregoni* are recorded.

R.T.L.

238—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. ONSY, A., 1937.—“The pathogenesis of endemic (Egyptian) splenomegaly.” 30 (6), 583-600.

(238a) Onsy describes in detail the pathology of 1,400 cases of Egyptian splenomegaly which in his opinion is undoubtedly due to infection with ova of the two schistosomes, *S. haematobium* and *S. mansoni*. The enlargement is a response of the splenic reticulo-endothelial tissues to deposition of ova which are quickly digested. The perpetual repetition of the process due to continual re-infection produces ultimately permanent hyperplasia and fibrosis. The lesions are not dependent on intestinal or hepatic bilharziasis.

R.T.L.

239—Tropical Agriculture.

a. HUTSON, L. R., 1937.—“A list of some parasites recovered from animals and poultry in Antigua, B.W.I.” 14 (7), 210-211.

240—Veterinary Record.

a. BAYON, H. P., 1937.—“The pathology of *Histomonas* entero-hepatitis in turkeys and other birds.” 49 (33), 1010-1015.

b. BLOUNT, W. P., 1937.—“Diseases of poultry. Some diseases of the digestive tract, including a note on fowl paralysis.” 49 (34), 1074-1087.

c. CRAIG, J. F. & DAVIES, G. O., 1937.—“*Paramphistomum cervi* in sheep.” 49 (35), 1116-1117.

d. CRAIG, J. F. & DAVIES, G. O., 1937.—“*Thelazia lachrymalis* in a horse.” 49 (35), p. 1117.

e. SMYTHE, R. H., 1937.—“The clinical aspects and treatment of ‘hoose’ (parasitic) and allied conditions in cattle.” 49 (39), 1221-1232.

(240b) This article concludes with 3 short paragraphs dealing with *Davainea* and *Ascaridia* infestations and with verminous pustular typhlitis in chicks. *Davainea* infections are important in poultry in East Sussex and male fern is efficacious. Copper sulphate has not proved of practical value in the control of the intermediate hosts. Blount states that in this country losses in chicks from ascaridial infestations are uncommon. In chicks there is a specific typhlitis, usually between the third and sixth week, due to immature worms.

R.T.L.

(240c) Craig & Davies describe an outbreak of *Paramphistomum cervi* in sheep on an 80 acre pasture in Cheshire where about 100 deaths have occurred within the last 5 years. Affected animals were often only seen down and if raised would stagger and fall. The post-mortem findings of the viscera from one case are given and because of the large number of these trematodes present it is considered that they may be the cause of the disease.

J.W.G.L.

(240d) Craig & Davies give a clinical note on the occurrence of *Thelazia lachrymalis* in the eye of a horse in Liverpool. About 15 specimens were removed from the conjunctival sac.

J.W.G.L.

(240e) Smythe gives a popular account of “hoose” in cattle caused by *Dictyocaulus viviparus*. The clinical point of view is discussed, including modes of infestation, diagnosis, prognosis, treatment and post mortem findings.

J.W.G.L.

241—Wiener Klinische Wochenschrift.

a. WYDRIN, A., 1937.—“Ein Fall von Herzechinococcus.” 50 (30), 1135-1137.

242—Zeitschrift für Fleisch- und Milchhygiene.

a. KELLER, H., 1937.—“Über den Einfluss von Gefriertemperaturen von -1 bis -4°C. auf die Lebensfähigkeit und Invasionsfähigkeit der Rinderfinne.” 47 (20), 393-397.

b. KÖPPS, H., 1937.—“Echinokokkus in der rechten Herzkammer einer Kuh.” 47 (20), 406-407.

(242a) Keller's investigations into the viability and infectivity of cysticerci, rolled up in contact with a thermometer in a strip of meat and exposed to low temperatures, show the following results: -1° to $-1.5^{\circ}\text{C}.$, viable after 25 days, not infective after 14 days; $-2^{\circ}\text{C}.$, not viable after 7 days, not infective after 5 days; $-3^{\circ}\text{C}.$, viable after 24 hours, not infective after 1 hour; $-4^{\circ}\text{C}.$, not infective after 1 hour. In practice he recommends the addition of one day in the freezing chamber, as a safety factor. The bile test was used for viability and Iwanizky's digestion test for infectivity. B.G.P.

243—Zeitschrift für Infektionskrankheiten, Parasitäre Krankheiten und Hygiene der Haustiere.

a. SCHMID, F. & SCHIPULL, H., 1937.—“Beitrag zur Beurteilung der Brauchbarkeit der Hautreaktion zum Nachweis der Trichinose.” 51 (3), 165-175.

(243a) Schmid & Schipull criticize the utility of the intradermal test for trichinosis. In trichinosed guinea-pigs the test gives a moderately safe and regular positive result (only two failures are recorded on use of Coca-dissolved antigen) when the infection of the animal is at least 10 days old. Up to nine days after infection the reaction is negative or doubtful. The reaction is specific in guinea-pigs, no reaction being observed when the guinea-pigs are infected with Ascaris or treated with Ascaris extract. These latter, however, react positively to Ascaris antigen. The skin reaction with Ascaris antigen is less specific, since trichinosed animals occasionally show a doubtful positive result. Further work is necessary before the reaction with *Trichinella* antigen can be shown to be specific in slaughtered pigs, and at the present state of experience the intradermal test cannot be substituted for meat inspection. In man, also, the intradermal reaction should be considered only in conjunction with other findings. V.D.S.

244—Zeitschrift für Parasitenkunde.

a. MEHRA, H. R., 1937.—“Certain new and already known distomes of the family Lepodermatidae Odhner (Trematoda), with a discussion on the classification of the family.” 9 (4), 429-469.

b. HÖLLODOBLER, K., 1937.—“*Cysticercus multiformis* nov. spec., eine noch nicht beschriebene Finnenform einer Cyclophyllidea.” 9 (4), 523-528.

c. SZIDAT, L., 1937.—“Über die Entwicklungsgeschichte von *Sphaeridiotrema globulus* Rud. 1814 und die Stellung der Psilostomidae Odhner im natürlichen System. I. Die Entwicklungsgeschichte von *Sphaeridiotrema globulus* Rud.” 9 (4), 529-542.

d. HEINEMANN, E., 1937.—“Neue Parasitenfunde beim Elchwild.” 9 (4), 559-562.

(244a) In his monographical study of the Lepodermatidae Mehra has redescribed several species, and gives illustrated descriptions of the following new forms: *Lepoderma bulbulii* n. sp., *L. casarcii* n. sp., *L. ferrugininum* n. sp., *Spinometra gangeticus* n. sp., *Glossimetra orientalis* n. g., n. sp., *Bilorchis indicum* n. g., n. sp., and *Cephalogonimus minutum* n. sp. In addition, new genera erected for pre-existing forms include *Neolepoderma*, *Natriodera*, *Ptyasiorchis*, and *Ophiorchis*. After discussing the classification of the family, he gives keys to the subfamilies and genera. B.G.P.

(244b) Hölldobler describes and figures *Cysticercus multiformis* n. sp., from the subcutaneous connective tissue of a fox. There was an interconnected mass of cysts of various sizes, and showing varying degrees of budding—usually at the pole opposite the scolex. The latter is formed in an invaginated state and bears four suckers and a [single?] crown of hooks. The author suggests affinities with *Echinococcus*. B.G.P.

(244c) Szidat finds that *Cercaria helvetica* XVII from *Bithynia tentaculata* develops in the domestic duck into *Sphaeridiotrema globulus*. He describes and figures the redia, cercaria, metacercaria (which usually encysts on the inside of the snail's shell) and adult. Szidat also describes two new cercariae from *B. tentaculata*: *C. gigantocerca* and *C. incognita*. B.G.P.

(244d) Heinemann lists the known parasites of the elk, including the following new records from 3 elk examined by him near Rossitten: *Moniezia denticulata* forma *alba*, *Oesophagostomum venulosum*, *Bunostomum trigonocephalum*, *Nematodirus filicollis* and *Trichuris globulosa*. B.G.P.

245—Zentralblatt für Chirurgie.

- a. KAMBOSSEFF, S., 1937.—“Zur Behandlung des zentralliegenden Lungen-echinococcus.” 64 (2), 81-86.
- b. HORTOLOMEI, N., BURGHELE, T. & GHERASHIM, M., 1937.—“Echinococcuscyste der Schilddrüse.” 64 (6), 360-361.

246—Zoologischer Anzeiger.

- a. RAHM, G., 1937.—“Frei lebende Nematoden vom Yan-Chia-Ping-Tal (Nordchina).” 119 (3/4), 87-97.
- b. SUBRAHMANIAN, K., 1937.—“*Pallisentis nagpurensis* (Acanthocephala) (Bhalerao, 1931).” 119 (3/4), 111-112.

(246a) Rahm has collected and identified a number of free-living nematodes from mosses in north China. In addition to a number of well known forms, the following are described as new: *Dorylaimus puchaussuensis* n. sp., *Hoplolaimus sinensis* n. sp. and *Anguillulina yanchiapingsensis* n. sp. T.G.

(246b) Subrahmanian points out that Bhalerao's description of the Acanthocephalid, *Pallisentis nagpurensis* appears to contain discrepancies with regard to (i) the attachment of the lemnisci, which are inserted anteriorly on the base of the proboscis and not, according to Bhalerao, on the proboscis sheath at the level of the nerve ganglion and (ii) the number of uteri; the author's observations agree with those of other investigators on the presence of a single uterus and he concludes that the biuterine condition, described by Bhalerao, is evidently a mistake. J.N.O.

NON-PERIODICAL LITERATURE.

247—ANON, 1937.—“Wurm-Merkblatt. Band- und Rundwürmer des Menschen und Fischen bei Tieren. (Bearbeitet im Reichsgesundheitsamt).” Berlin, 4 pp.

248—HEIDEGGER, E., 1937.—“Wurmtafeln zum Bestimmen der wichtigsten Haustierparasiten.” Stuttgart, viii + 121 pp.

After a preliminary section (pp. 2-13) dealing with the detection and concentration of ova, and the examination and preservation of adult helminths, Heidegger gives four diagrams portraying the generalized structure of a trematode, cestode, male and female nematode. There follow the worm tables (pp. 18-105), eight life-history charts, and an index. The worm tables are arranged under hosts—15 domestic animals and birds—and give name of parasite (with common synonyms), location, a brief indication of life-history, and a slight diagnostic note, the latter usually illustrated by a thumb-nail sketch of such principal diagnostic features as egg, or bursa, or head.

B.G.P.

249—SCHUURMANS STEKHOVEN, jr., J. H., 1937.—“Parasitic Nematoda.”
In : Exploration du Parc National Albert. Mission G. F. de Witte (1933-1935),
Fasc. 4, Bruxelles, 40 pp.

Schuurmans Stekhoven has described 18 species of nematodes collected by de Witte in the Albert National Park (Belgian Congo) including the following new forms : *Ophidascaris amucronata* n. sp. from snakes, *Thelazia digiticaudata* n. sp. from the eye of *Halcyon chelicuti*, *Oxyspirura wittei* n. sp. from the orbit of *Dioptrornis tornensis*, *Spiroxys gedoelsti* n. sp. from the stomach of *Bitis arietans*, *Philometra congolense* n. sp. from the stomach of a *Clarias* sp., and *Aplectana congolense* n. sp. from the body cavity of *Phrynobatrachus graneri*.

In an introduction he discusses and approves the use of head characters in classifying the Nematoda, but is led to derive the Spiruroidea and Filarioidea from free-living marine nematodes of the Enoploid type, and not from soil nematodes. In fact, the latter he regards (*contra* Chitwood & Wehr and Steiner) as secondarily derived from marine forms.

B.G.P.